

City of Ann Arbor

Urban & Community Forest Management Plan

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EXECUTIVE SUMMARY

VISION: ***Ann Arbor's urban and community forest is a prominent feature of the city valued by its citizens for the positive contributions it makes to the quality of life and character of the community. The urban and community forest is a vital part of the city's green infrastructure system and is managed sustainably through sound practices, policies and community stewardship to provide environmental, social and economic benefits today and into the future***

The urban and community forest is a defining and valued characteristic of the city of Ann Arbor, which residents affectionately call "Tree Town," helping to make it a desirable place to live, work and play. It is made up of the trees, shrubs and woody vegetation growing along city streets; in public parks; and on institutional and private property. The urban and community forest provides many environmental, economic and social benefits to the community, including reducing stormwater runoff, improving water and air quality, moderating summer temperatures, lowering utility costs, improving quality of life and beautifying the city. It is estimated that Ann Arbor's city-managed urban and community forest, which includes trees growing along streets and in mowed areas of parks, provides nearly $4.6 million[1] in benefits each year.

While the urban and community forest serves as an important and integral part of the city, serious challenges over the last decade have negatively impacted the care and management of the city-managed trees within it. From 2004 to 2008, the City directed full-scale operations to remove 10,000 dead and dying ash trees lining city streets and growing in city parks that were infested with the emerald ash borer. While the removal of these hazardous ash trees was a necessity, the nearly exclusive focus of City budget and staff resources on their removal led to a deferment in maintenance of the remaining city-managed trees. The removal of the last ash trees in 2008 did not however, improve the care and maintenance of the urban and community forest. It has been further impacted by reductions in Forestry's budget caused in part by the economic downturn in 2008. Forestry's street tree operations budget in fiscal year 2014 is 29% less than it was in fiscal year 2007.

These challenges have significantly impacted the City's ability to sustainably care for and maintain the publicly-managed urban and community forest. Deferment in maintenance and budget reductions have resulted in a backlog of tree maintenance activities that are placing the health and condition of Ann Arbor's tree canopy at serious risk. The purpose of the Urban and Community Forest Management Plan (UCFMP/Plan) is to provide a framework for the City to effectively manage the urban and community forest as a sustainable asset, consistent with the values and needs of the community, while maximizing its benefits.

1 Davey Resource Group. 2009. I-Tree Streets Calculated Public Tree Values and Benefits for the City of Ann Arbor. http://www.a2gov.org/government/publicservices/fieldoperations/forestry/Documents/SummaryReport_CalculatedPublicTreeValuesAndBenefits.pdf

Urban & Community Forest Management Plan Development Process

Public engagement and outreach were important elements in the development of the UCFMP. Through a multi-tiered and comprehensive public engagement process stakeholders, community leaders, city staff and residents helped shape the scope, content and direction of the plan. The result is a community-driven plan that is responsive to the issues, needs and desires of the community.

Goals

OVERARCHING GOAL

Sustainably protect, preserve, maintain and expand Ann Arbor's tree canopy and urban and community forest. To ensure a sustainable urban and community forest resource, existing tree canopy should be preserved and maintained while also ensuring the resource is diverse and resilient to changing pressures; supports local ecosystem health and biodiversity; and is managed for long-term survivability with a mixture of tree ages, and species to provide a continuous canopy over time.

SUPPORTING GOALS

Develop practices and policies to support a sustainable urban and community forest. City ordinances, operation and maintenance procedures, and policies should be aligned with supporting a sustainable, healthy, safe and expanding urban and community forest.

Devise and implement sustainable funding strategies that support the urban and community forest, recognizing the economic, social and environmental value of trees. The urban and community forest generates many benefits and cost savings for the community, but managing it to maximize these benefits and minimize risk requires public support, funding and long-term planning. The level of funding and range of funding sources must match the desired management level.

Enhance and support the ecological functions that the urban and community forest provides. The urban and community forest should be managed to support and enhance the many valuable ecological benefits that trees provide to the community during their life cycle, including stormwater management, wildlife habitat, erosion control and improving air quality.

Ensure communication and coordination among city units and outside entities about proper urban forestry management standards and protection measures for Ann Arbor's tree canopy. City units and outside entities performing activities that impact city-managed trees must follow standards for protection and management of these trees. They must communicate planned activities and coordinate their efforts with Forestry staff to ensure proper, consistent and transparent urban and community forest management.

Build and maintain community support and knowledge about the benefits of the urban and community forest and its management. Building long-term support for the urban and community forest resource and management systems, on both public and private property, will require a community that understands its value, is informed and educated about current forestry activities, policies and practices and understands the risks of not managing it.

Engage the community, both individuals and organizations, in the collective management of the urban and community forest. The community can play a key role in the management of the urban and community forest by participating in planting, maintenance and other tree management activities. Training and engaging residents in urban and community forestry operations will help build awareness, long-term support and stewardship of the resource.

Promote amenity uses of the urban and community forest. The urban and community forest provides ecosystem goods and services during and beyond its life cycle, offering further benefits to the community (e.g. local woodworkers and artisans using wood from dead trees; trees as a food source). These and other uses of the urban and community forest should be identified, explored and promoted.

Recommendations

The 17 Urban and Community Forest Management Plan recommendations are listed below. The recommendations are listed in priority order based on input from the public, the UCFMP Advisory Committee, and Working Group. A description of each recommendation with their associated action tasks and implementation ideas is provided in Chapter 5.

- **RECOMMENDATION #1**: Implement a proactive tree maintenance program for Ann Arbor's publicly-managed trees, emphasizing routine pruning, removals and care to improve the health and sustainability of the canopy.
- **RECOMMENDATION #2:** Develop and strengthen tree planting and young tree maintenance programs for both public and private trees.
- **RECOMMENDATIONS #3:** Develop and implement a comprehensive program to monitor and address threats to the urban and community forest.
- **RECOMMENDATION #4:** Increase the preservation and protection of landmark/special trees and native forest fragments on public and private lands.
- **RECOMMENDATION #5:** Secure adequate and sustainable city-generated funding to support an increased level of service for core urban forestry services and programs.
- **RECOMMENDATION #6:** Develop street tree planting master plans that balance tree functions, diversity, design and neighborhood character.
- **RECOMMENDATION #7:** Develop and implement a grant, loan and philanthropic funding program to support additional forestry services, special urban forestry initiatives and programs beyond the core level of service to address changing urban forestry needs.
- **RECOMMENDATION #8:** Strengthen and refine City ordinances to support the implementation of the Urban and Community Forest Management Plan.
- **RECOMMENDATION #9:** Expand on existing practices and programs to update the tree inventory and urban tree canopy analysis.
- **RECOMMENDATION #10:** Develop, communicate and follow an urban forest best management practices manual for use by city staff, partners, other entities and the community.

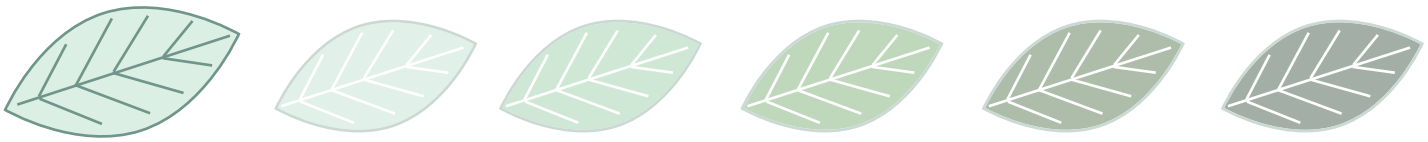
- **RECOMMENDATION #11:** Enhance and develop programs that encourage active participation by volunteers in the development and promotion of a sustainable urban and community forest.
- **RECOMMENDATION #12:** Strengthen working relationships and partnerships with businesses, organizations and contractors whose activities impact city trees by instituting regular dialogue and project coordination.
- **RECOMMENDATION #13:** Implement an outreach program to inform and educate residents about the urban and community forest, forestry operations and maintenance, and ways to support the implementation of the Urban and Community Forest Management Plan.
- **RECOMMENDATION #14** Obtain the highest and best use of wood from trees removed by the City.
- **RECOMMENDATION #15:** Create city staff working groups to coordinate activities and projects that impact the urban and community forest within and among city units.
- **RECOMMENDATION #16:** Engage the Environmental Commission and Park Advisory Commission in urban and community forest management.
- **RECOMMENDATION #17:** Review the Urban and Community Forest Management Plan periodically and update as needed.

Implementation

The implementation of the UCFMP will take time and additional resources. To help prioritize the implementation of the plan and identify needed resources, public input was sought to identify the top five recommendations that should be a priority for City resources (see table). The priorities identified by the public aligned with those of the UCFMP's Advisory Committee and Working Group. Chapter 6 describes the resources needed to implement each recommendation and Appendix D provides additional information on implementation options for Recommendation #1 based on community input that this recommendation should be implemented first.

TOP 5 RECOMMENDATIONS FOR CITY RESOURCES (Listed in Priority Order)
RECOMMENDATION #1: Implement a proactive tree maintenance program for Ann Arbor's publicly managed trees, emphasizing routine pruning, removals and care to improve the health and sustainability of the canopy.
RECOMMENDATION #2: Develop and strengthen tree planting and young tree maintenance programs for both public and private trees.
RECOMMENDATIONS #3: Develop and implement a comprehensive program to monitor and address threats to the urban and community forest.
RECOMMENDATION #4 Increase the preservation and protection of landmark/special trees and native forest fragments on public and private lands.
RECOMMENDATION #5: Secure adequate and sustainable city-generated funding to support an increased level of service for core urban forestry services and programs.

Top 5 Plan Recommendations that should be priority for City resources based on public input.



1 Planning Process & Overview

CHAPTER 1: PLANNING PROCESS & OVERVIEW

Ann Arbor's urban and community forest is made up of the trees, shrubs and woody vegetation growing along city streets, in public parks and on institutional and private property. It is a defining and valued characteristic of the city, which residents affectionately call "Tree Town," helping to make it a desirable place to live, work and play. The positive contribution the urban and community forest makes to Ann Arbor's quality of life is just one of the many important benefits it provides to the community. The urban and community forest also provides many environmental, economic and social benefits, including reducing stormwater runoff, improving water and air quality, moderating summer temperatures, lowering utility costs and contributing to property values.

Purpose of the Urban & Community Forest Management Plan

Ann Arbor's publicly-managed urban and community forest provides approximately $4.6 million[1] in benefits each year to the city and its residents. The Urban and Community Forest Management Plan (UCFMP/Plan) will provide a framework for the City to effectively manage the urban and community forest as a sustainable asset, consistent with the values and needs of the community.

Plan Organization. The UCFMP is organized into six chapters and supporting appendices.

Chapter 1: Planning Process and Overview provides an overview of the plan and describes the plan development process.

Chapter 2: City Background and Forestry History presents background information about the city and the Forestry program.

Chapter 3: Current Conditions and Management provides information on the state of the urban and community forest resource, tree management activities, funding and program strengths and challenges.

Chapter 4: Vision, Goals and Targets outlines the UCFMP Vision, Goals and Targets.

Chapter 5: Recommendations and Action Tasks presents the UCFMP Recommendations. Each of the 17 UCFMP recommendations is followed by a full description that includes tasks and ideas to help implement the recommendation.

Chapter 6: Implementation outlines the resources needed to implement each recommendation.

Appendices: Supplemental information on the plan development process, Forestry staffing recommendations, and definitions.

1 Davey Resource Group. 2009. i-Tree Streets Calculated Public Tree Values and Benefits for the City of Ann Arbor. http://www.a2gov.org/government/publicservices/fieldoperations/forestry/Documents/SummaryReport_CalculatedPublicTreeValuesAndBenefits.pdf.

Development of the Urban and Community Forest Management Plan

The Urban and Community Forest Management Plan will provide a framework to effectively manage the city's urban and community forest as a sustainable asset, consistent with the values and needs of the community.

Before the development of the city's ***first*** UCFMP was initiated, a tree inventory and urban tree canopy analysis were completed. The tree inventory and urban tree canopy analysis provided information on the structure, composition, condition, function, value and needs of the city-managed urban and community forest. The tree information gathered was analyzed by the City to better understand the city's tree resource, its needs and to provide a solid foundation for the development of the UCFMP. With the information gathering and analysis completed, the City was now ready to begin the Plan development process.

Public engagement and outreach were important elements in the development of the UCFMP. A multi-tiered and comprehensive public engagement process engaged stakeholders, community leaders, city staff and residents throughout plan development. Public input helped to identify and focus plan goals and provided a means of vetting ideas, exploring implementation options and establishing priorities among multiple-management activities. The public engagement process was successful in making the UCFMP a community-driven plan that is responsive to the issues, needs and desires of the community. The next section ('Plan Development Process'), details the comprehensive public engagement process used to develop the Plan.

The Public Engagement Process

A comprehensive public engagement plan created by the City and the City's UCFMP project consultant, SmithGroup JJR, provided the foundation for the public engagement process. The goal of the public engagement plan was to engage stakeholders, community leaders, city staff and residents in shaping the scope, content and direction of the plan; and to ensure that it met the needs of the community while achieving a sustainable urban and community forest.

Four groups were engaged throughout the planning process, the Working Group, Advisory Committee, Stakeholder Focus Groups and the Ann Arbor Community (public).

The Working Group. The Working Group included city staff from various city units, including Field Operations (includes Forestry), Systems Planning, and Natural Area Preservation, and members of the SmithGroup JJR consultant team. The Working Group was charged with developing the recommendations, providing technical support, creating plan documents and facilitating the engagement process. It also served as the principal decision-making body. Decisions were made considering recommendations from the Advisory Committee and feedback from the Stakeholder Focus Groups and the Ann Arbor community. The Working Group met 14 times during the planning process and also provided feedback via email.

The Advisory Committee. The 15-person Advisory Committee (AC) was established to represent multiple community interests from residents to businesses and institutions (see Appendix C 1 for list of Committee Members). The AC members, primarily selected from Stakeholder Focus Group participants, were tasked with advising the Working Group on the scope, content, direction and recommendations of the plan. The AC also helped identify approaches for engaging the community and other stakeholders, and to raise awareness about the plan and planning process among their stakeholder groups. The AC met 10 times during the planning process and also provided feedback via email.

Stakeholder Focus Groups. The Stakeholder Focus Groups (SFG) provided targeted input about urban and community forest issues and opportunities, proposed plan recommendations and plan elements. SFG members represented different groups throughout the city interested in urban and community forest issues, including, residents, neighborhood and business organizations, City boards and commissions, public agencies and institutions, utility companies, environmental/non-profit groups and City units (see Appendix C2 for list of invited Stakeholder groups). Members of the SFG participated in three focus group sessions held at key points during the planning process.

The Ann Arbor Community. At the broadest level, the Ann Arbor community was engaged in the planning process through participation in public workshops, online surveys and the online forum, A2 Open City Hall. Broad input was sought during initial stages of plan development to identify important community issues and opportunities related to the urban and community forest and its maintenance. Subsequent outreach efforts provided the community an opportunity to review and comment on draft recommendations and the draft UCFMP prior to finalizing the plan documents.

The planning process provided a variety of opportunities for the community to participate in plan development including, public workshops, surveys, online public engagement forum, focus groups, and committee meetings. Table 1 provides details on the public engagement activities utilized during plan development. For more detailed information about the public engagement process, please see Appendix C or visit www.a2gov.org/ucfmp.

Plan Elements

The initial public input identified a set of common issues, opportunities and ideas, which became known as the "Common Themes." The Common Themes provided the foundation of the plan and the basis for the plan elements. The top 10 Common Themes are provided in Table 2, ranked in order by the number of references each received; for example, the theme "Tree Selection and Planting, Diversity, Native trees, Right tree/right place" is ranked #1 because it had the most references. The complete Common Themes chart can be found in Appendix C6.

While the Common Themes provided the foundation for the plan, additional guiding principles were identified during analysis of input received over the course of the project (see "Guiding Principles for the Development of the UCFMP). The Guiding Principles, Common Themes and public input formed the plan elements-- Vision, Goals, Recommendations and Implementation Plan.

	Public Engagement Activity	Audience	No. of Participants	Topics/Tasks	Activity Promotion & Publicity
May & June 2010	Public Workshops (2 workshops with same content)	Ann Arbor Community	24	• Kick-off UCFMP • Provide feedback on scope and direction of plan • Identify issues and opportunities for improving Ann Arbor's urban forest	• Neighborhood Association invitations • Press Release • Email to City of Ann Arbor email subscribers • City website, Tree Town Log, and on-line calendar • Administrator communication at 5/3/10 City Council meeting • City of Ann Arbor's Facebook and Twitter pages
Aug-Oct 2010	On-line Survey	Ann Arbor Community	398	• Identify issues and opportunities for improving Ann Arbor's urban forest.	• Press Releases • Email to City of Ann Arbor email subscribers • Resident Newsletter • Posted on City's Facebook and Twitter pages
Jan 2011-Oct 2013	Working Group Meetings #1-14 Electronic review of plan elements	Working Group	12	• Review public input and information about Ann Arbor's urban forest. • Develop UCFMP with advice and guidance from the Advisory Committee & input from stakeholders and the community.	• Personal invitation to select city staff inviting their participation in the Working Group.
Feb. 2011	Focus Group #1 6 Sessions- one per stakeholder group	Stakeholders	45	• Identify issues and opportunities for improving Ann Arbor's urban forest.	• Personal invitations to over 175 Ann Arbor area groups, including neighborhoods, businesses & non-profit organizations.
April 2011-Oct 2013	Advisory Committee-Meetings #1-10 Electronic review of plan elements	Advisory Committee Members	12-17	• Review public input and information. • Provide assistance and guidance in developing UCFMP vision, goals, targets and recommendations.	• Advisory Committee members were selected to represent a wide variety of interests and stakeholder focus groups. • Personal invitations to selected Advisory Committee members.
May 2011	Focus Group #2 (same format as Focus Group #1)	Stakeholders	38	• Review and provide input on draft UCFMP goals.	• Personal invitations to all organizations invited to Focus Group #1.
March 2012	Focus Group #3 (2 sessions all groups)	Stakeholders	27	• Review and provide input on 56 draft plan recommendations	• Personal invitations to all organizations invited to Focus Groups #1 & 2.
Sept - Oct 2012	Public Workshop On-line Survey A2 Open City Hall (moderated on-line forum)	Ann Arbor Community Stakeholders	Public Workshop: 20 Survey: 205 started/138 completed A2 Open City Hall: 60 read topic/7 commented	• Review and provide input on the final draft plan recommendations	• *A2 City News (*resident newsletter) and *Water Matters* (resident utility bill newsletter) • Press Release • Advertised in *AnnArbor.com* and *The Chronicle* • WEMU 89.1 Radio Interview • Event posters/bookmarks distributed throughout city, including public schools, public library branches, City facilities and businesses • Email to City of Ann Arbor email subscribers • City website, Tree Town Log, on-line calendar • Administrator communication at August 2012 City Council meeting • City of Ann Arbor Facebook and Twitter pages
Dec-April 2014	Presentations at City Commissions (Planning, Park Advisory and Environmental) Electronic review of UCFMP draft	Working Group Advisory Committee Ann Arbor Community	50-100	• Review and provide comment on the UCFMP draft	• *A2 City News (*resident newsletter) • Press Release • WEMU radio interview • Email to City of Ann Arbor email subscribers • City website • Administrator communication at February & March 2014 City Council meetings • City of Ann Arbor Facebook and Twitter pages

Table 1: Public engagement activities utilized during the development of the UCFMP

Rank	Top 10 Common Themes (Ordered by number of references)
1	Tree Selection & Planting, Diversity, Native Trees, Right Tree/Right Place
2	Budget, Funding, Lack of Sufficient Resources
3	Routine Tree Maintenance and Young Tree Care
4	Public Education, Communication, Transparency about Forestry Activities (ex: trimming, removals, tree planting)
5	DTE- utility line clearance, pruning practices
6	Incentives for and assistance with private tree planting
7	Volunteers engaged in urban forestry management activities (ex: tree planting, tree trimming)
8	Tree and Sidewalk Issues
9	Ordinances/Tree related Requirements
10	Wood Utilization

Table 2: Top 10 Common Themes identified by the community

Guiding Principles for the Development of the UCFMP

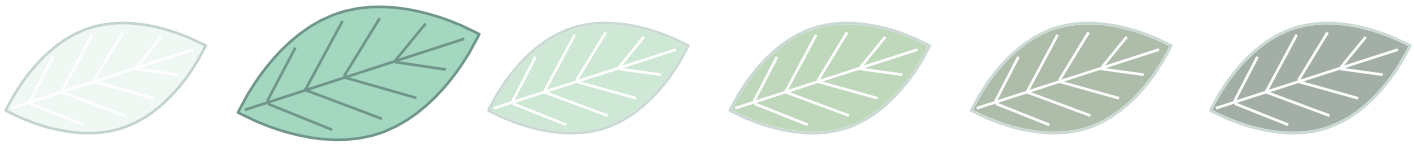
The UCFMP will provide and communicate an inspiring vision for the future of the urban and community forest that reflects the values of the community. *Ann Arbor's urban and community forest is a defining and valued characteristic of Ann Arbor, which residents affectionately call "Tree Town." Community input is critical during plan development to ensure that the plan meets community needs while achieving a sustainable urban and community forest.*

The community recognizes that the urban & community forest is all trees in the city, both public and private. *Approximately 75% of Ann Arbor's urban and community forest is on private property and the remaining 25% is on public property. Reaching plan goals requires a focus on its entirety. Plan recommendations related to private land will focus on education, advocacy and incentives.*

Ann Arbor's urban and community forest is satisfactory but at risk. With focused effort and strategic improvements it can be made exemplary. *Past levels of City support to maintain and improve the urban and community forest are now challenged by a diminishing budget and competition for dollars. This plan will identify priorities for City resources and suggest how community stewardship (e.g. partnerships, volunteerism) can provide the additional support needed to help achieve plan goals and a truly sustainable urban and community forest*.

The City of Ann Arbor will lead by example through innovative, efficient, and supportive policies and practices that are a smart use of taxpayer dollars. *There are short-term needs that will need attention but the plan must also set long-term targets to maximize the benefits that the urban and community forest can provide. The plan will define action strategies, roles and responsibilities and steps necessary to achieve goals.*

The condition of the urban and community forest, as a living system, can change rapidly. *This plan will be adaptable and responsive to changing conditions. It will incorporate adaptive management approaches to ensure long-term, sustainable success of urban and community forestry programs, policies and practices.*



2 City Background & Forestry History

CHAPTER 2: CITY BACKGROUND & FORESTRY HISTORY

LOCATION, CLIMATE & NATURAL FEATURES

Ann Arbor is located in Washtenaw County, approximately 40 miles west of Detroit in southeast Michigan. The city measures approximately 28 square miles and is a patchwork of both natural and urban landscapes, including hills, bluffs, trees, ravines, wetlands, creeks, roads, buildings and homes. A dominant feature of the landscape is the Huron River, which runs through the city and is fed by several tributaries, including Allen Creek, Millers Creek and Traver Creek. The city is situated entirely within the Huron River watershed, which drains to Lake Erie.

The dominant soil types are Miami Loam, Fox Sandy Loam and urban soils. Urban soils are human-made having been modified through development; they lack the structure, profile and physical properties of native/natural soils.

Ann Arbor's climate is influenced by the surrounding Great Lakes. The average high temperature in July is 83° F, and the average low temperature in January is 17° F. However, summer temperatures exceed 90°F and winter temperatures extend below 0° F. Ann Arbor is in hardiness zone 6a, according to the 2012 United States Department of Agriculture Hardiness Zone map.

The city is home to a wide array of wildlife, including 105 species of summer resident birds, 75 species of butterflies, 10 species of frogs and toads, eight species of turtles and eight species of snakes. These species include some that are state-listed as endangered, threatened or of special concern in Michigan.

CLIMATE CHANGE. Climate change poses a serious threat to the local environment, economy, and quality of life within the community. Research from organizations, such as the Great Lakes Integrated Sciences and Assessments Center (GLISA), predicts that climate change in the Great Lakes region will increase ambient temperatures, exacerbate extreme weather events, and change rainfall patterns and lake temperatures. The impact of climate change on Ann Arbor's urban and community forest may include new pests and invasive species, and drought and warmer temperatures that shift certain tree populations further north. Ann Arbor is working to plan for and adapt to the effects of climate change across the community and within municipal infrastructure systems.

In December 2012, the City of Ann Arbor adopted a Climate Action Plan (www.a2energy.org/climate) to mitigate the effects of climate change. Ann Arbor's urban and community forest plays an integral role in both mitigating greenhouse gas emissions and adapting to local impacts of climate change. Trees act as a carbon sink by removing carbon dioxide from the atmosphere and storing the carbon in their roots, branches, trunk and leaves, while simultaneously releasing oxygen into the air. One mature sugar maple tree reduces CO_2 levels by 502 pounds per year and collectively Ann Arbor's public tree resource is estimated to reduce CO_2 by 7,851 metric tons per year. The urban and community forest also helps

Ann Arbor adapt to local climate impacts by minimizing the urban heat island effect in downtown areas and providing direct shade for homes and buildings otherwise exposed to warmer surface temperatures. Ann Arbor has experienced both an increase in frequency of extreme precipitation events and an increase in overall annual precipitation. A key strategy to adapt to changes in precipitation is increasing the quality and size of the urban and community forest to improve water quality and limit flooding by mitigating stormwater run-off. As Ann Arbor and the region's climate continues to change, the urban and community forest will serve as a pivotal resource in building community resiliency to climate impacts.

Brief History of The City

In February 1824, pioneers John Allen and Elisha Walker Rumsey purchased 640 acres near the Huron River in the newly created county of Washtenaw from the United States Land Office. The town plot was registered as "Annarbour" on May 25, 1824 and later that year, Governor Cass named it as the Washtenaw County seat. Mr. Allen and Mr. Rumsey's promotion of the new town and its role as the county seat brought an influx of settlers to Ann Arbor. By 1827, Ann Arbor featured several inns, stores, tanneries, blacksmiths, mills and homes. It was incorporated as a village in 1833.

Origins of the Name Ann Arbor

According to the book *Ann Arbor's First Lady* by Russell Bidlack, "Ann" was in honor of John Allen's wife and "Arbor" was in reference to an open stand of Bur oak trees growing along the Huron River.

1836 Map of Village of Ann Arbor by J. E. Strallon.
Source: Bentley Historical Library

In 1837, the University of Michigan moved from Detroit to Ann Arbor and established a new campus near State Street on 40 acres of land offered by local residents. The Michigan Central Railroad arrived in late 1839, linking Ann Arbor to Ypsilanti and Detroit. The presence of the University and improved transportation via the railroad helped the city to continue to grow and attract new settlers. Ann Arbor was chartered as a city in 1851 and by the turn of the century had a population of over 14,000 permanent residents.

While the University of Michigan remained a prominent feature of Ann Arbor's economy, the 1900s saw a diversification of the economy with the addition of light manufacturing, milling, furniture making, generation of electric power and heavy manufacturing associated with World War I. The Great Depression had an impact on the community, but by the mid-1930s the city was showing signs of a steady recovery with the expansion of several industrial facilities and increases in retail and new construction.

Like most cities in the United States, Ann Arbor prospered after World War II. The City made considerable investments in infrastructure and a boom in construction occurred on both private and public lands, including University of Michigan and public school properties. Research at the University of Michigan in engineering and technology attracted industrial and research companies to Ann Arbor, helping to further diversify the economy following World War II.

Today, the City of Ann Arbor's population is just under 114,000 and the land area covers more than 18,000 acres. Education, manufacturing, health care, automotive, information technology and biomedical research fields are the lead contributors to the city's economy.

Forestry History

Ann Arbor's pre-settlement landscape was dominated by oak-hickory and mixed-oak forests with pockets of black oak barren, mixed-hardwood swamp, and shrub-swamp/emergent wetland Following settlement, forests were cleared and trees were cut to provide lumber for building, wood for heating and land for agriculture and grazing. This clearing had a profound impact on the landscape and led to barren areas of the city that lacked the natural beauty of the original land purchased by Allen and Rumsey.

In 1843, a group of citizens, concerned with the lack of greenery and condition of the public courthouse square, formed the Ann Arbor Ornamental and Protective Association. According to their constitution, "The chief object of this Association shall be to ornament the public square [court house] with trees and protect the same, and to ornament the main public streets in like manner, as far as practicable with their means."[1] This was the first organized effort to improve Ann Arbor through the planting of trees. In 1913, the Ann Arbor Civic Association created the City Beautiful Committee whose focus was on tree and shrub care and other beautification topics.[2]

The City established a Parks Commission in 1905 to oversee all city parks, street extensions and trees. In 1919, Eli Gallup was named Parks Superintendent, and he served in that position for 38 years. Mr. Gallup loved trees and, in addition to his duties as Parks Superintendent, he also served as the de facto city forester.

Mr. Gallup's appreciation of trees was demonstrated in the early 1930s when a large American elm in Island Park was uprooted during a storm[3]. Mr. Gallup was concerned that the small island where the tree was located would wash away without trees roots to anchor the soil. With tremendous effort and assistance from the Edison Company and the Michigan Central Railroad, the tree was returned to its upright position. The tree survived until 1974, when it succumbed to Dutch elm disease and had to be removed[4]. The island where the tree was located has since washed away.

Eli Gallup created a tradition of care, maintenance and stewardship of the urban and community forest that continues today. However, the legacy of care and maintenance of the urban and community forest tells only part of the story about the composition and condition of today's tree resource. Beginning in 1953, three "small" things forever changed Ann Arbor's urban and community forest.

View of Ann Arbor 1870/1879 (ca.) Randall.
Source: Bentley Historical Library

1 Stephenson, Orlando Worth. (1927). *Ann Arbor the first hundred years.* Ann Arbor, MI: Ann Arbor Chamber of Commerce
2 Pictorial History of Ann Arbor. http://moaa.aadl.org/moad/pictorial_history. Accessed January 25, 2013.
3 Historical Ann Arbor "Righting Fallen Elms at Island Park, early 1930s". http://www.youtube.com/watch?v=zeReDXuQJnU. Accessed January 25, 2013.
4 G. Hunt, personal communication, August 21, 2008

American Elm at Island Park uprooted during a storm and returned to its upright position (circa 1930)

"Small" Things That had a BIG Impact on Ann Arbor's Urban & Community Forest

Dutch Elm Disease (DED). The American elm (*Ulmus americana)*, a native Michigan tree, was a popular street and yard tree during the first half of the 20th century. The tree was valued for its fast growth and the vase-like shape of its crown. This shape created a "tree tunnel" when the branches of mature elm trees lining a street would meet over the road. This "tree tunnel" effect was loved by residents and soon streets, including many in Ann Arbor, were lined exclusively with American elm trees, creating a monoculture on these streets. This monoculture would soon lead to the tree's demise.

Elm lined street in Ann Arbor 1967

In the early 1900s, an exotic vascular disease from Asia was discovered killing elm trees in Europe; it would become known as Dutch elm disease (*Ophiostoma novo-ulmi*). It was brought to the United States in the 1930s on a shipment of elm logs delivered to an Ohio furniture factory from Europe. The disease spread rapidly after being introduced in the United States, being transported to healthy trees overland by the elm bark beetle and underground through the grafting of root systems between neighboring trees. The exclusive planting of American elm along city streets aided its rapid spread and transmission. Within two years of its discovery in Ohio, DED had been found in elm trees in New York, New Jersey and other eastern states.

Elm trees being treated along an Ann Arbor street by city Forestry crew

In 1953, an American elm tree growing in Huron Hills Golf Course was discovered to be infected with the disease, and the earnest battle against DED began in Ann Arbor. In the spring of that year the City began a spraying program to help stop, or at least slow the spread of the disease. DDT was sprayed on elm trees to kill mature elm bark beetles that were transporting the disease. The spraying program continued into the 1960s, until the City switched to removing diseased trees. Between 1953 and 1986 the City removed over 12,000 American elms dramatically impacting the city's urban and community forest. DED is still present in Ann Arbor and remaining elm trees continue to succumb to the disease.

Gypsy Moth. Gypsy moth (*Lymantria dispar)*, an exotic insect native to Europe and Asia, was imported to the United States in the late 1860s by E. Leopold Trouvelot. Mr. Trouvelot brought Gypsy moth egg masses from France to his home in Medford, Massachusetts in the hopes that the caterpillars would yield silk. The insects proved to be poor silk producers and were inadvertently released into Trouvelot's Medford neighborhood. Gypsy moth larvae (caterpillars) feed on the leaves of deciduous and evergreen trees and during their peak feeding, they can completely defoliate trees. They prefer oak, poplar, basswood, and serviceberry, but have been found feeding on nearly 30 tree species.

In 1892, Trouvelot's neighborhood had the first outbreak of Gypsy moth. Gypsy moth slowly spread throughout the northeastern United States, reaching Michigan during the 1950s. Ann Arbor was spared for

many decades, but in 1994 a population of Gypsy Moth was found in the Ive's Woods area of Burns Park. The City monitored the area closely during the next year, and in the spring of 1995 began spraying *Bacillus thuringiensis* (Bt). The spraying program, funded through a cost-share between residents and the City, targeted areas with the highest populations of Gypsy Moth (Burns Park and Arbor Hills areas). The City sprayed only once because early detection, along with a wet spring the following year and the discovery of *Entomophaga maimaiga*, a natural killer of the Gypsy moth, helped to keep the population low. While there are occasional outbreaks in Ann Arbor, including one during the summer of 2013, natural enemies provide excellent biological control and help keep the population in check.

Gypsy Moth Larvae
Photo Credit:
Jon Yuschock, Bugwood.org

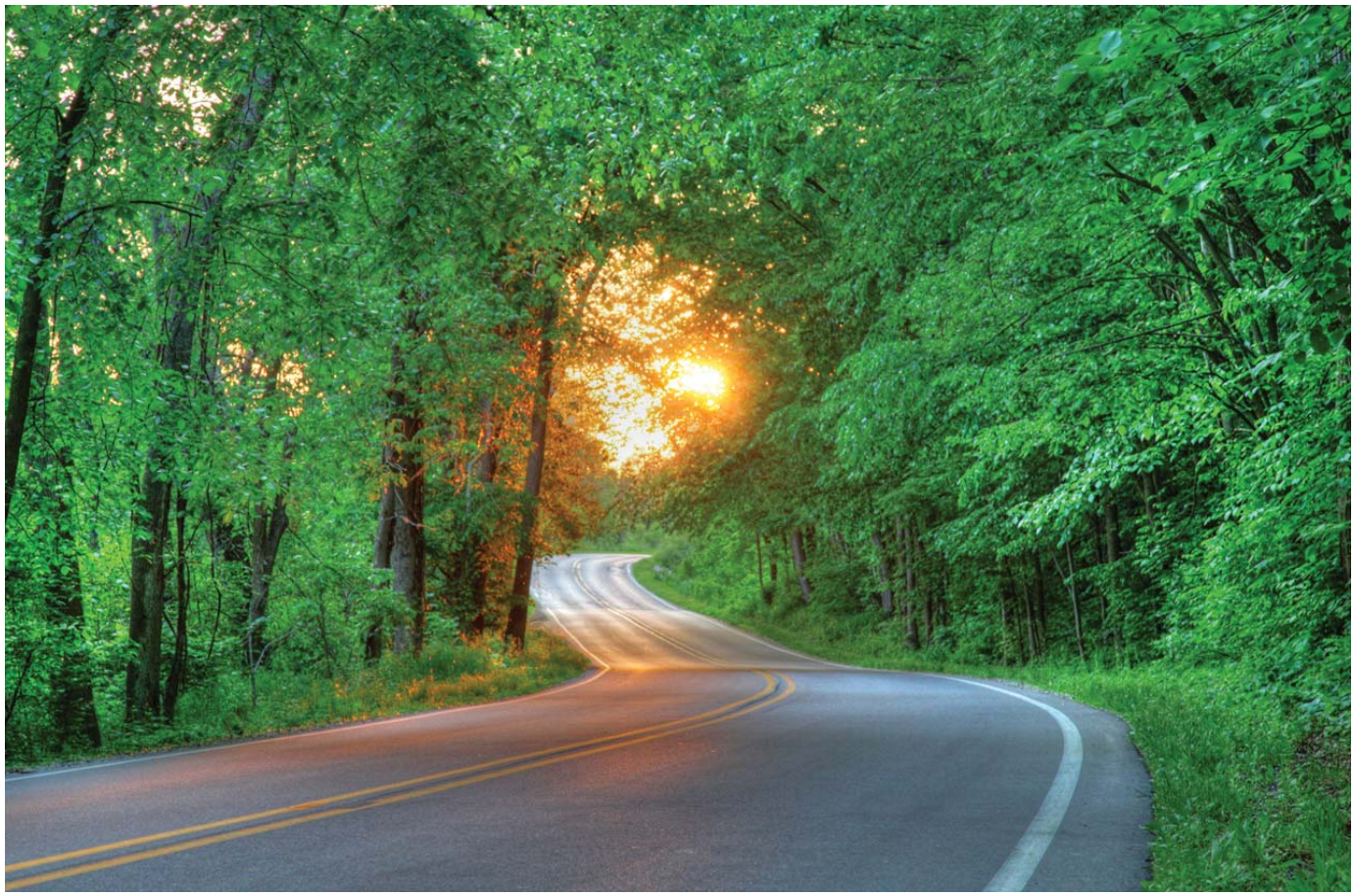
Emerald Ash Borer (EAB). Emerald ash borer (*Agrilus planipennis* Fairmaire*)* is an exotic wood boring beetle native to China that infests ash trees (*Fraxinus)*. The beetle larvae feed just beneath the bark in the cambium layer, disrupting the transport of water and food throughout the tree. A heavy infestation of emerald ash borer (EAB) completely blocks the transport of food and water, killing the tree. While adult beetles feed on ash foliage their feeding causes little damage to the tree.

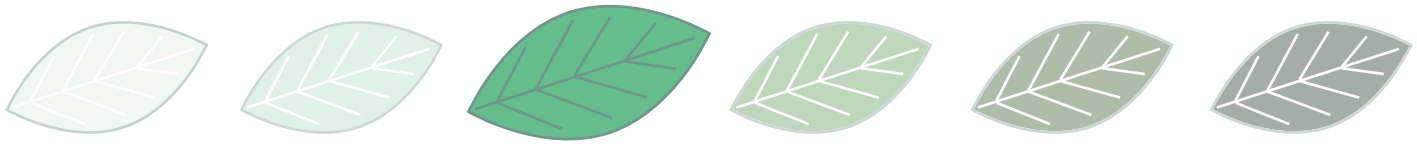
EAB was first discovered in the United States in southeastern Michigan in the summer of 2002; it is believed to have arrived on solid-wood packing material from cargo shipped from Asia. Evidence suggests that it was in Michigan for up to a decade before its discovery. It infests all species of ash native to Michigan including, Green ash, White ash, Blue ash, and Pumpkin ash.

Emerald Ash Borer adult beetle.
Photo Credit: Eric R. Day, Virginia Polytechnic Institute and State University, Bugwood.org

EAB was discovered in Ann Arbor's ash trees in 2003, but by the time it was discovered the population was already firmly established. From 2004 to 2008, the City removed over 10,000 ash trees growing along city streets and in mowed areas of parks. While the removal of ash trees has been complete for several years, EAB continues to affect the community. While the most visible sign of the EAB crisis was the loss of thousands of ash trees, the City's focus on removing dead and dying ash trees led to the deferment of maintenance on the remaining trees in Ann Arbor's urban and community forest. As a result, there is a backlog of pruning, tree planting, tree removals, and stump removals today, that cannot be fully addressed with the resources available.

Ann Arbor street lined with dead ash





3 Current Urban and Community Forest Conditions & Management

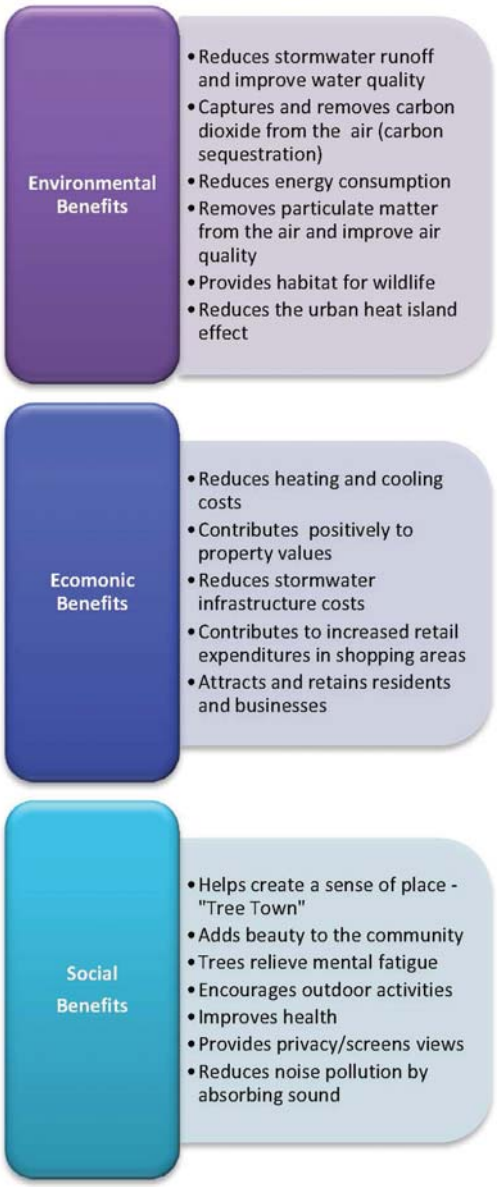
CHAPTER 3: CURRENT URBAN & COMMUNITY FOREST CONDITIONS & MANAGEMENT

URBAN AND COMMUNITY FOREST RESOURCE

Approximately 75% of Ann Arbor's urban and community forest is on private property, and the remaining 25% is on public property. This section describes the composition of the tree resource managed by the City including trees growing along public streets and in mowed areas of city parks.

BENEFITS OF THE URBAN & COMMUNITY FOREST: $97 PER TREE[1]

Trees provide a wide range of environmental, economic and social benefits to the community, including reducing stormwater run-off, improving air and water quality, reducing energy demand, and improving the community's quality of life. Ann Arbor's publicly-managed trees growing along city streets and mowed areas of the parks provide approximately $4.6 million in benefits to the community each year. When the cost of managing the public trees is subtracted, the publicly-managed urban and community forest provides $2.3 million in benefits annually.



WATER. $519,895 PER YEAR BENEFIT: $11 PER TREE

Trees capture and store precipitation, reducing peak flows and total stormwater run-off amounts. Together, Ann Arbor's public trees intercept 65 million gallons of stormwater annually. In addition to reducing the amount of stormwater run-off, trees improve run-off quality by intercepting pollutants (e.g. pesticides, oils, and other potentially harmful chemicals) and allowing them to be filtered out as water moves through the ground.

ENERGY. $2,252,055 ANNUAL SAVINGS: $48 PER TREE

During the summer, trees shade buildings helping to keep them cool and reduce air condition use. In the winter, deciduous trees allow sunlight to warm buildings and lower heating costs. Trees also save energy by slowing winds, allowing buildings to retain heat.

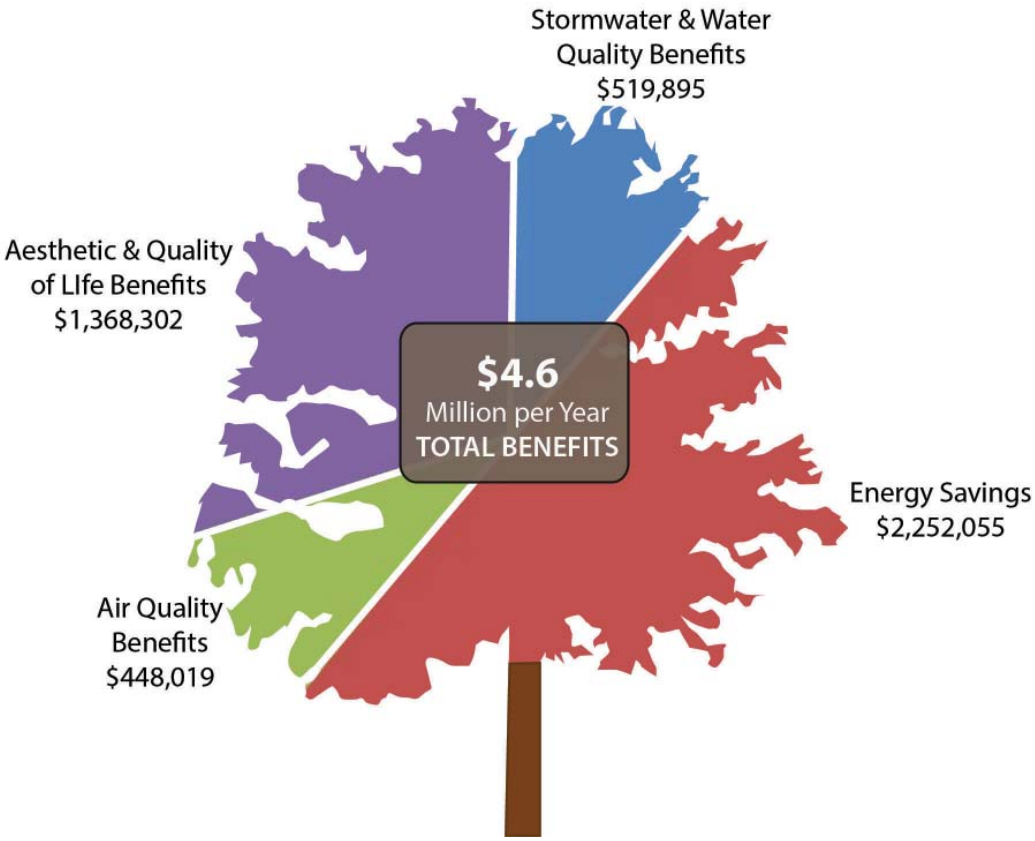
1 Davey Resource Group. 2009. I-Tree Streets Calculated Public Tree Values and Benefits for the City of Ann Arbor. http://www.a2gov.org/government/publicservices/fieldoperations/forestry/Documents/SummaryReport_CalculatedPublicTreeValuesAndBenefits.pdf

Air. $448.019 per year benefit: $9 per tree

Ann Arbor's urban and community forest provides many air quality benefits to the community. Trees improve air quality by absorbing pollutants (e.g. ozone, nitrogen oxide and sulfur dioxide) and intercepting particulate matter (e.g. dust, ash dirt, pollen and smoke) from the air. They also sequester, or lock up, carbon in roots, trunks, branches, and leaves while growing (carbon sequestration), helping to reduce the amount of atmospheric carbon dioxide. Ann Arbor's public trees reduce atmospheric CO_2 through sequestration by a net of 7,851 tons per year. Trees growing near buildings can also reduce heating and air conditioning needs, thereby reducing emissions associated with power production.

Aesthetic Value & Quality of Life. $1.368.302 per year in property value and aesthetic benefits: $29 per tree

Trees provide natural beauty and privacy to homeowners that can improve curb appeal and increase property values. They also provide wildlife habitat, and serve as an integral part of the community and landscape of 'Tree Town'.



Current Urban & Community Forest Conditions

Tree Inventory. In 2009, the City received a grant from the Michigan Department of Natural Resources and USDA Forest Service Urban and Community Forestry programs to support the development of a comprehensive street and park tree inventory. The City contracted with Davey Resource Group, a division of the Davey Tree Expert Company, to collect detailed information on the species, size, location (geo-coded), condition and maintenance needs of all publicly-managed trees growing along city streets and mowed areas of parks. The tree inventory was completed in May 2009, with Davey Resource Group inventorying 57,055 total sites in Ann Arbor. It is updated regularly by city staff to reflect changes that have occurred based on maintenance activities, including tree planting and tree removals. Table 3 compares the tree inventory between May 2009 and May 2013.

	Tree Inventory 2009 completed by Davey Resource Group		Tree Inventory 2013 as updated by city staff	
	# of Trees	% of Total	# of Trees	% of Total
Street Trees	40,749	71%	43,244	75%
Park Trees	6,610	12%	6,904	12%
Vacant Planting Sites (Streets)*	8,853	16%	5,633	10%
Stumps	843	1%	1,328	3%
***Not all vacant street tree planting sites were identified in the tree inventory**				

Table 3: Comparison of inventoried sites between May 2009 to May 2013

The data collected during the inventory was added to the City's geographic information system (GIS) and integrated with "Cityworks" asset management software, enabling the City to manage trees in the same manner other city assets are managed. Using Cityworks, city staff are able to create work orders for specific trees and update the tree maintenance and condition attributes in the tree inventory continuously.

Species Diversity. Ann Arbor's urban and community forest includes over 200 tree species, representing 82 genera. While there is diversity in the number of genera and species within the publicly-managed population, the genus *Acer* (maple) is overrepresented, making up 35% of the population. To address the dominance of maple species in the city-managed tree population, the City is taking measures to increase species diversity including, reducing the number of new maple trees planted by the City and planting more species in genera that are less abundant including *Betula* (Birch), *Celtis* (Hackberry), *Gymnocladus* (Coffeetree), *Quercus* (Oak) and *Ulmus* (Elm). *Acer platanoides*

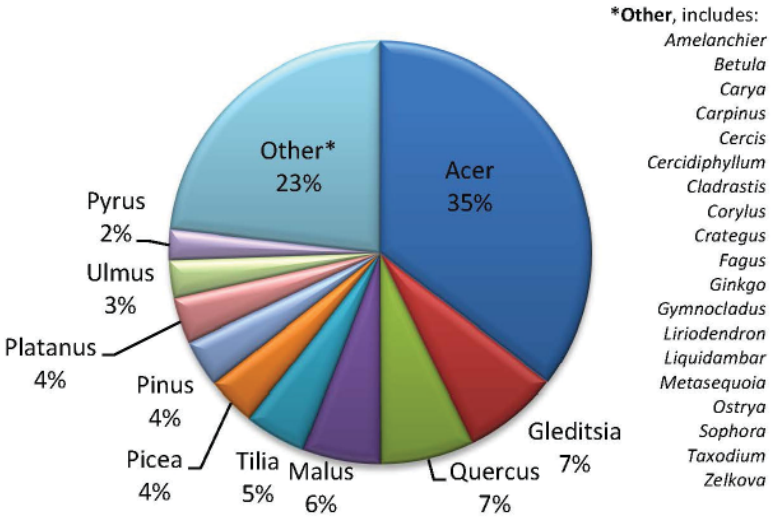


Figure A: Species composition of publicly-managed trees

(Norway maple), the city's most prevalent species, was added to the City's invasive species list in 2004, and its planting is now prohibited. The measures to reduce the dominance of maple are proving successful; the percentage of maple in the city-managed tree population has decreased nearly 3% since 2009. Tables 4 and 5 compare the Top 10 genera and species in the publicly-managed street and park tree populations between 2009 and 2013. The "Percent Change'"column in both tables show whether the population of the genus/ species has increased or decreased between 2009 and 2013.

Rank	Genus (Botanical)	Genus (Common)	2009 Number of Trees	2013 Number of Trees	Percent Change by Genus 2009 to 2013	
1	Acer	Maple	18,102	17,582	-3%	↓
2	Gleditsia	Honeylocust	3,670	3,659	-0.3%	↓
3	Quercus	Oak	3,140	3,551	+12%	↑
4	Malus	Crabapple	3,050	2,954	-3%	↓
5	Tilia	Linden	2,439	2,345	-4%	↓
6	Picea	Spruce	1,899	1,883	-1%	↓
7	Pinus	Pine	1,868	1,782	-5%	↓
8	Platanus	Sycamore	1,696	1,757	+3%	↑
9	Ulmus	Elm	1,347	1,433	+6%	↑
10	Pyrus	Pear	1,126	1,164	+3%	↑
	Other		9,022	11,525	+22%	↑

Table 4: Top 10 genera in the publicly-managed street and park tree populations between 2009 and 2013

Rank 2013	Species (Botanical)	Species (Common)	2009 Number of Trees	2013 Number of Trees	Percent Change by Species 2009 to 2013	
1	Acer platanoides	Norway Maple	6,264	5,913	-6%	↓
2	Acer saccharum	Sugar Maple	5,359	4,818	-11%	↓
3	Gleditsia triacanthos	Honeylocust	3,612	3,584	-1%	↓
4	Acer rubrum	Red Maple	3,273	3,198	-2%	↓
5	Malus spp.	Apple/Crabapple	2,997	2,903	-3%	↓
6	Acer saccharinum	Silver Maple	2,194	2,004	-9%	↓
7	Tilia cordata	Littleleaf Linden	1,959	1,882	-4%	↓
8	Platanus x acerifolia	London Planetree	1,541	1,635	+6%	↑
9	Quercus rubra	Red Oak	1,125	1,153	+2%	↑
10	Pyrus calleryana	Callery Pear	1,114	1,143	+3%	↑
	Other				+6%	↑

Table 5: Top 10 species in the publicly-managed street and park tree populations between 2009 and 2013

Size & Age Distribution. The size distribution and species composition of the trees in an urban and community forest can serve as a general predictor of the relative age of the resource. To calculate the size distribution, the diameter of each tree at 4.5 feet above the ground (at breast height, DBH) is measured. Figure B shows the DBH distribution of city street and park trees in 2009 and 2013. These figures provide a general understanding of the size and age distribution of the tree population, however, there are several items that should be noted when comparing them:

- City staff have not updated the DBH of existing trees since they were inventoried in 2009. Only the DBH of newly planted trees are currently being updated. Existing trees that have grown and moved from one size category to another (e.g. medium to large) are not reflected in the 2013 chart.
- The increase in small-diameter trees is due to tree planting. From 2009-2013 the city planted over 6,000 street and park trees.

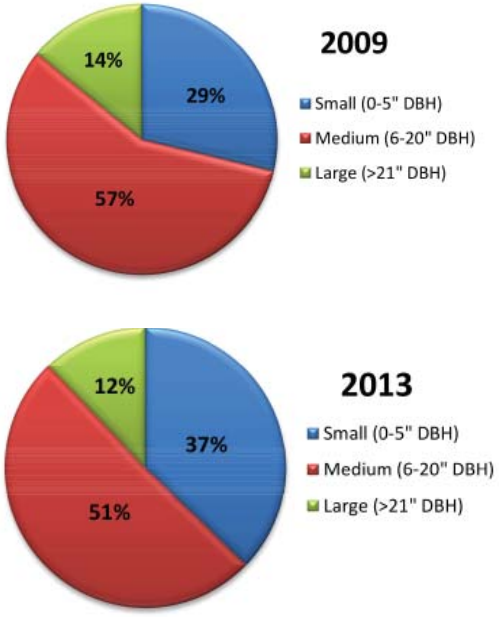


Figure B: Comparison of the size distribution of publicly-managed street and park trees between 2009 and 2013

Based on the size distribution in 2013, Ann Arbor's publicly-managed urban and community forest is middle-aged trending towards young. In order to ensure a sustainable urban tree canopy and to achieve the tree canopy targets outlined in the UCFMP (Chapter 4), tree management activities should be focused on tree pruning and tree planting.

The priority for tree pruning should be medium and large trees, focusing on improving their structure and health, and ensuring their longevity. Small and newly planted trees should be pruned to develop proper form and structure.

Small tree species, such as crabapple, redbud and serviceberry, which make up 15% of the city-managed urban and community forest, will never reach the large diameter size category. As new trees are planted, large tree species (e.g. oak, tuliptree, sycamore/planetree) should be used, whenever possible, to ensure that large trees continue to dominant the urban tree canopy.

Condition/ Maintenance Needs. During the tree inventory, the condition of each tree was evaluated based on crown development, trunk condition, major branch structure, twig growth rate, presence of insects/diseases, and root condition. Each tree was assigned a condition class, ranging from excellent to dead, to reflect the current state of tree health, structural soundness, overall shape, and growth rate (see Appendix A for definition of condition classes). Table 6 provides condition and maintenance needs of the city-managed urban and community forest. The majority of trees, 90% of the population, are in fair condition or better, while 10% are in poor condition or worse. Figure C compares the condition of the city-managed street and park trees between 2009 and 2013.

Each tree, planting site, and stump is assigned a maintenance category (e.g. tree planting, tree removal, pruning, stump removal) determined in part by its condition class. Approximately 80% of the tree population needs some level of pruning (e.g. routine pruning, young tree pruning or priority pruning). Recommended maintenance for the remaining 20% of the tree population includes, tree planting, tree removal and/or stump removal. Figure D compares maintenance needs of city-managed street and park trees between 2009 and 2013.

	STREET TREES	PARK TREES (MOWED AREAS)	TOTAL	PERCENTAGE OF TOTAL
Number of Trees	44,018	7,011	51,119	
CONDITION*				
Excellent	10	16	26	0.5%
Very Good	3,810	508	4,318	8%
Good	14,691	1,619	16,310	32%
Fair	20,989	4,199	25,188	49%
Poor	3,974	534	4,508	9%
Critical	213	48	261	0.5%
Dead	331	87	418	1%
Number of Trees/Planting Sites/Stumps	50,074	7,035	57,109	
MAINTENANCE CATEGORY*				
Large Tree Routine Prune	23,619	3,452	27,071	47%
Small Tree Routine Prune	2,909	690	3,599	6%
Training Prune	11,947	2,362	14,309	25%
Priority 1 Prune	995	45	1,040	2%
Priority 2 Prune	2,148	174	2,322	4%
Priority 1 Removal	355	8	363	1%
Priority 2 Removal	489	68	557	1%
Priority 3 Removal	651	105	756	1%
Stump Removal	1,328	121	1,449	3%
Plant Tree	5,633	10	5,643	10%
*See Appendix A for tree inventory definitions				

Table 6: Condition and maintenance category of city-managed street and park trees (May 2013)

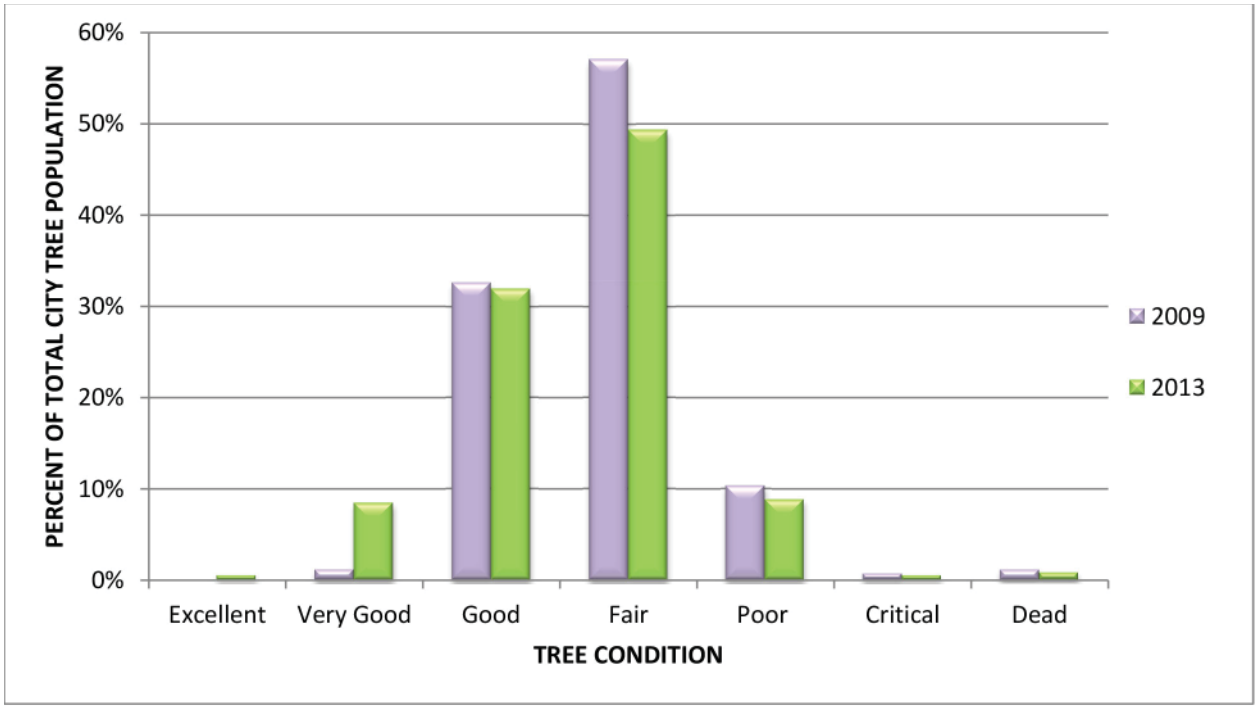


Figure C: Comparison of the condition of city-managed trees between 2009 and 2013

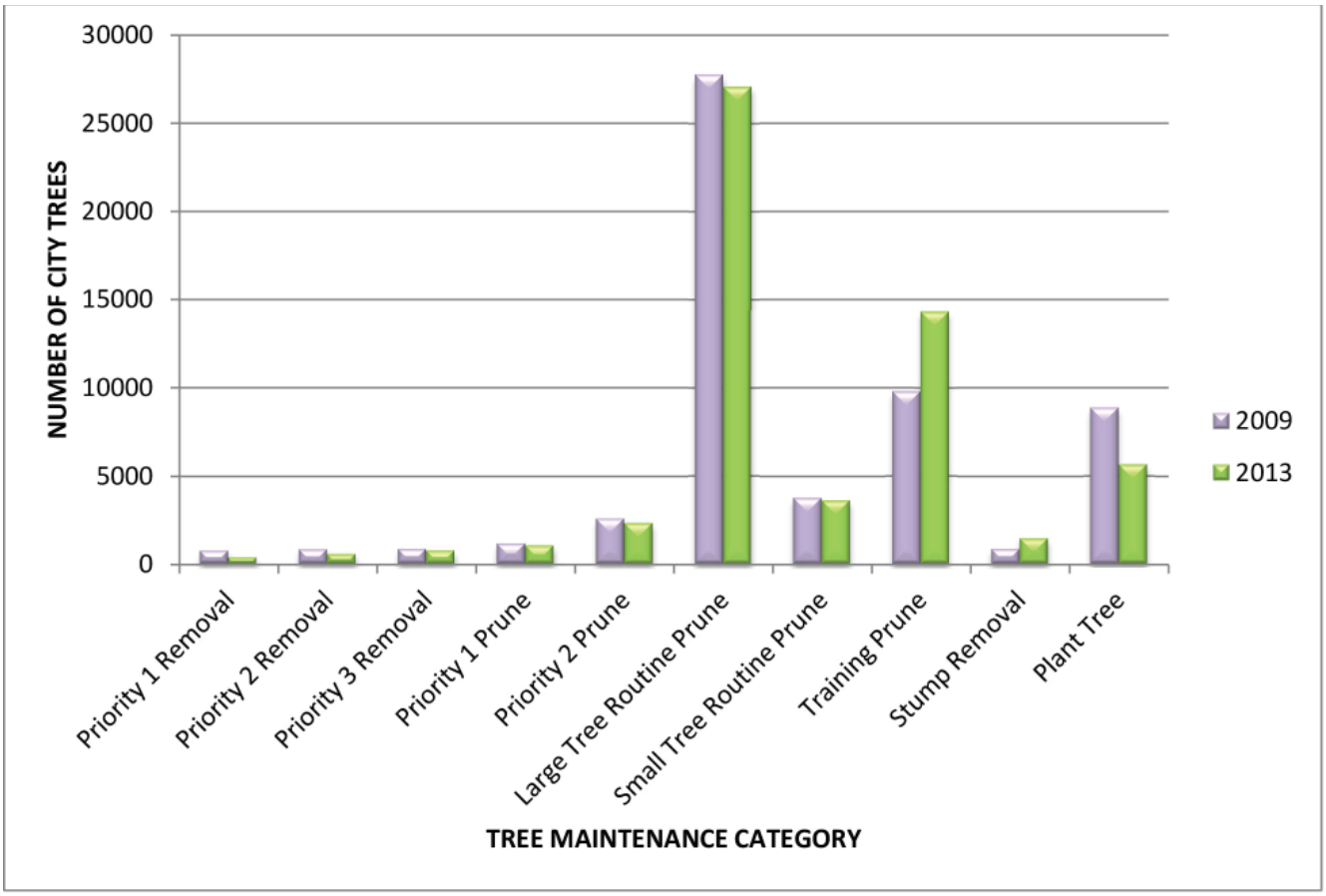
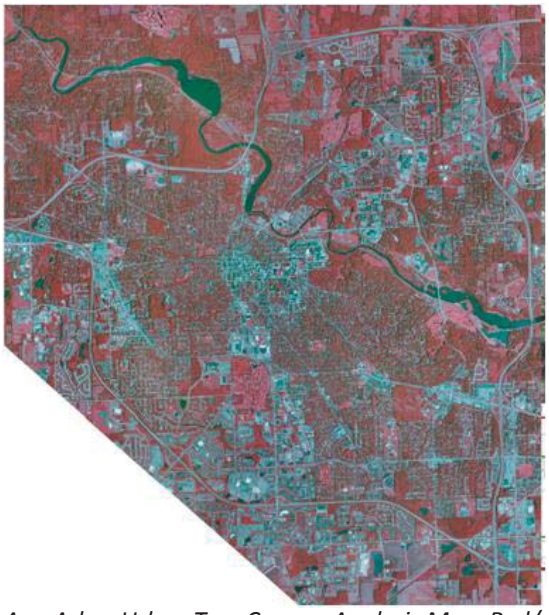


Figure D: Comparison of tree maintenance categories for city-managed trees between 2009 and 2013

Urban Tree Canopy Analysis. In 2010, in partnership with AMEC Earth and Environmental, Inc., and with financial assistance from the Michigan Department of Natural Resources and USDA Forest Service, the City of Ann Arbor conducted an Urban Tree Canopy (UTC) analysis. The analysis mapped and assessed the existing and possible urban tree canopy, the layer of leaves, branches, and stems of trees that cover the ground when viewed from above. The analysis was conducted within the city limits of Ann Arbor, covering approximately 29 square miles.



Ann Arbor Urban Tree Canopy Analysis Map. Red/ pink areas represent trees and other vegetation; blue/green areas represent impervious surfaces.

The UTC analysis utilized 2009 leaf-on, multi-spectral aerial imagery from the National Agriculture Imagery Program (NAIP). AMEC analyzed the imagery using geographic object-based image analysis (GEOBIA) techniques to develop a dataset that included tree canopy, grass/open space, impervious surface area, bare soil, and water. The UTC analysis found the City of Ann Arbor's Existing UTC (all area covered by trees and forest) is 33%. Of the Existing UTC, residential areas represent 37% and pubic rights-of-way represent 24%. The percentage of existing urban tree canopy by land use is presented in Table 7.

The UTC analysis provides another tool to help the City manage the urban and community forest resource. It is utilized for various planning activities, including the development of the city's yearly tree planting plan. The UTC is used to identify areas with low canopy cover that should be targeted for tree planting. The results of the UTC also helped establish canopy cover goals and targets for the UCFMP.

Land Use	Existing Urban Tree Canopy (%)
Commercial	10%
Industrial	14%
Mixed Use	9%
Office	19%
Public/Institutional/Transportation/Utility	28%
Public Right-of-Way	24%
Recreation/Open Space	48%
Residential	37%
Total City-Wide Urban Tree Canopy	**33%**

Table 7: Existing Urban Tree Canopy by land use

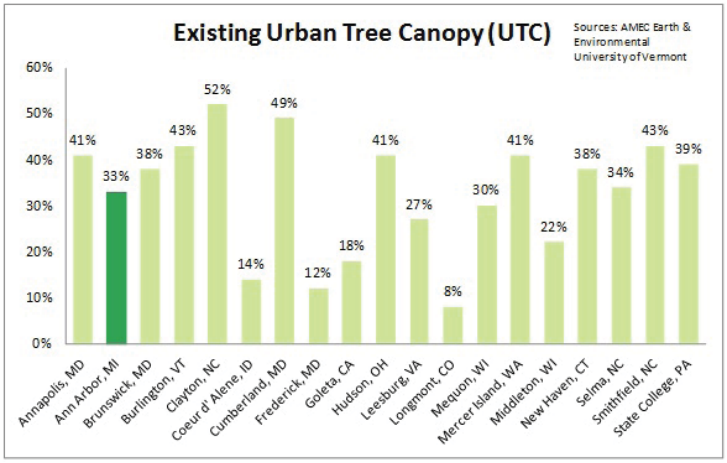


Figure E: Comparison of the City of Ann Arbor's urban tree canopy cover to other U.S. cities that have completed a UTC (2010)

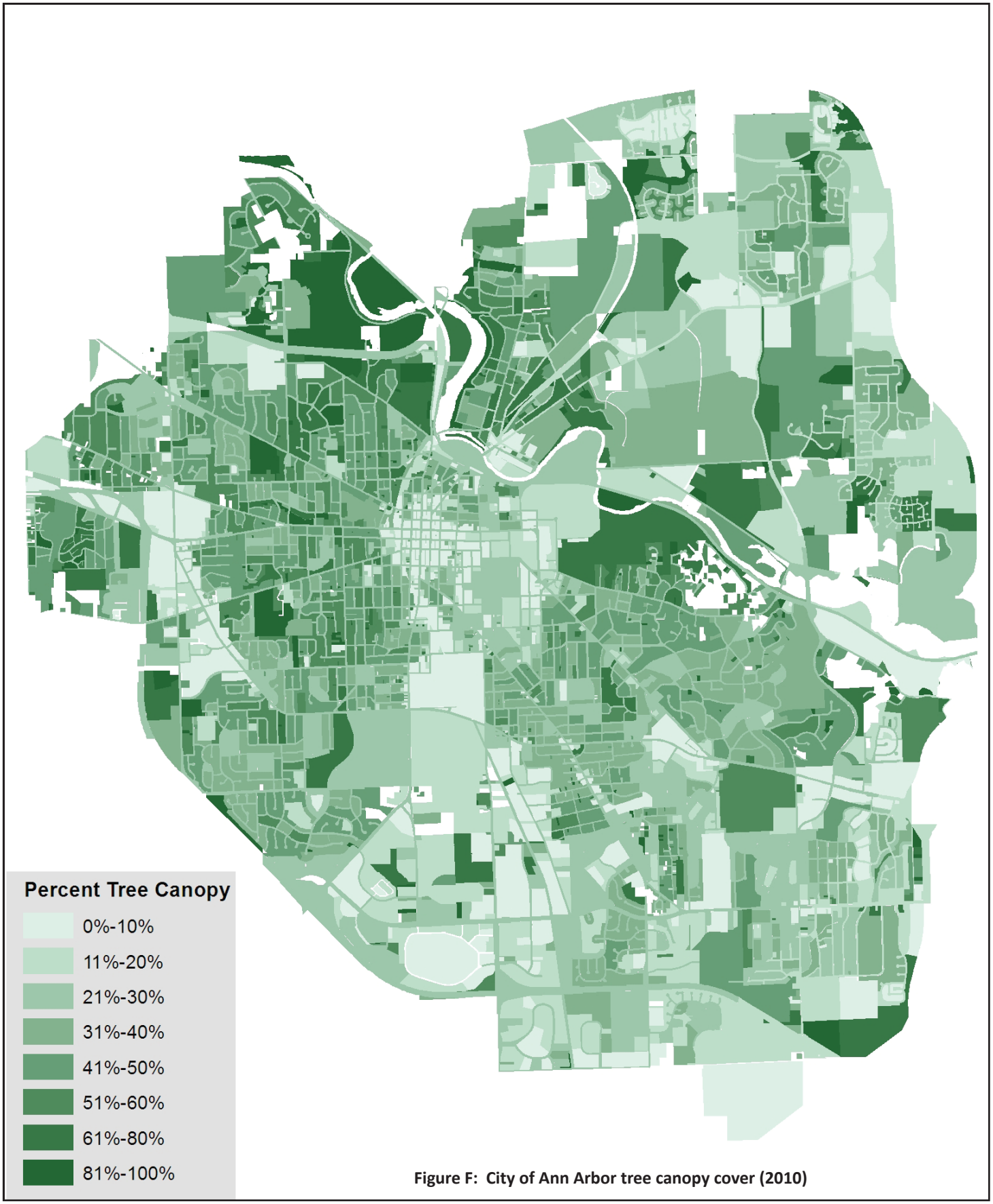


Figure F: City of Ann Arbor tree canopy cover (2010)

Ordinances & Standards

Ordinances. Ordinances in Ann Arbor's City Code set regulations for a variety of areas, including municipal administration, parks, public grounds, streets, sidewalks, planning and zoning, food and health, public safety, traffic, businesses, and construction. Aspects of Ann Arbor's urban and community forest (trees) are regulated under Ann Arbor City Code. The following ordinances pertain to the urban and community forest:

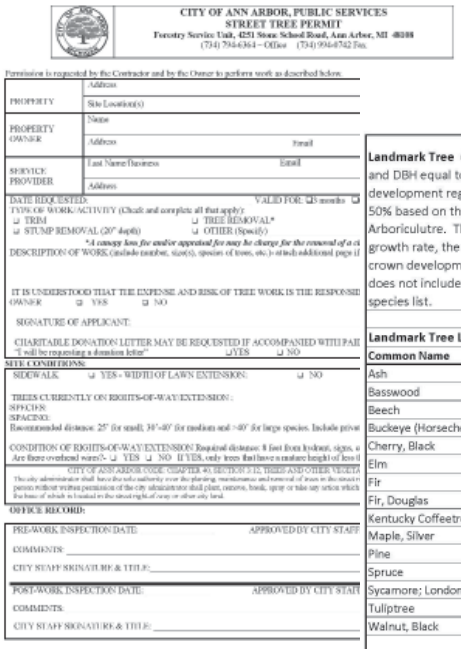
- **Chapter 40: Trees and Other Vegetation**: Provides permit requirements for city street tree planting, care and removals. It also details requirements for maintaining right-of-way vegetation, and private hazardous trees/vegetation, including those impeding sight clearance.
- **Chapter 41: Cemeteries:** Prohibits the damage or removal of any tree within any city cemetery.
- **Chapter 47: Streets:** Provides requirements for maintenance of private vegetation adjacent to the right-of-way. It also details the street tree requirements for private streets and the responsibility of contractors to repair damage to any street trees impacted during construction.
- **Chapter 49: Parks- General Regulations**: Prohibits the damage or removal of park vegetation, including trees.
- **Chapter 57: Subdivision and Land Use Controls**: Details development regulations; site plan approval process; requirements for the protection and mitigation of landmark trees, woodlands, and other natural features. Includes supplemental Land Development Regulations that provide guidance on the protection and mitigation of natural features, including landmark trees and woodlands.
- **Chapter 60: Wetlands**: Prohibits the attachments of wires, nails or other objects to trees during construction of wetland protection fencing.
- **Chapter 62: Landscape and Screening Ordinance**: Provides landscape, screening and buffer requirements for private development.
- **Chapter 82: Littering and Distribution of Handbills:** Prohibits the posting of banners, posters or flyers on city right-of-way street trees; and prohibits their posting on private trees without the property owner's permission.

Public Services Area Standard Specifications. The Public Services Area Standard Specifications provide standards for public improvements constructed in the city. The specifications govern design, materials, and installation of pavement, sanitary sewers, water mains, and storm sewers, and also improvements such as streetlights and landscaping. The following sections of the Standard Specifications pertain to the urban and community forest, trees and landscaping. *(Please Note: The Standard Specifications are currently being revised and the sections referenced in this document (revised 1994) may be different in the updated version of the Standard Specifications).*

- **Division I: General Specifications:** Provides tree protection standards and mitigation for city-owned trees damaged by contractor.
- **Division II: Design Standards:** Details opportunities to meander sidewalks/bike paths within the right-of-way to protect and save trees, if specific design standards are met.

- **Division III: Material Standards:** Provides specifications for landscaping and restoration items, including plant material, soil, staking, mulch, and edging.
- **Division IV: Utility Installation, Construction and Repair:** Permits installation of utilities by boring to protect trees; and details mitigation requirements for city-owned trees damaged by contractors.

  Division VIII: Landscaping and Restoration: Provides standards for landscaping and restoration including, tree planting operations, tree protection, maintenance guidelines and plant material guarantee.
- **Division IX: Pay Items**: Provides description and process for payment of plant material installation and tree removal.
- **Division X: Standard Details:** Provides tree planting and tree protection details.



CITY OF ANN ARBOR, PUBLIC SERVICES
STREET TREE PERMIT
Forestry Service Unit, 4251 Stone School Road, Ann Arbor, MI 48108
(734) 794-6364 – Office (734) 994-8742 Fax

Permission is requested by the Contractor and by the Owner to perform work as described below.

PROPERTY — Address; Site Location(s)
PROPERTY OWNER — Name; Address; Email
SERVICE PROVIDER — Last Name/Business; Email; Address

DATE REQUESTED: VALID FOR: ☐ 6 months ☐
TYPE OF WORK/ACTIVITY (Check and complete all that apply):
☐ TRIM ☐ TREE REMOVAL*
☐ STUMP REMOVAL (20" depth) ☐ OTHER (Specify)
*A canopy loss, fee and/or appraisal fee may be charge for the removal of a ti
DESCRIPTION OF WORK (include number, size(s), species of trees, etc.) attach additional page if

IT IS UNDERSTOOD THAT THE EXPENSE AND RISK OF TREE WORK IS THE RESPONSIB
OWNER ☐ YES ☐ NO

SIGNATURE OF APPLICANT:

CHARITABLE DONATION LETTER MAY BE REQUESTED IF ACCOMPANIED WITH PAI
"I will be requesting a donation letter" ☐YES ☐ NO

SITE CONDITIONS:
SIDEWALK: ☐ YES - WIDTH OF LAWN EXTENSION: ☐ NO

TREES CURRENTLY ON RIGHTS-OF-WAY/EXTENSION:
SPECIES:
SPACING:
Recommended distance: 25' for small; 30'-40' for medium and >40' for large species. Include prive

CONDITION OF RIGHTS-OF-WAY/EXTENSION: Required distance: 8 feet from hydrant, signs, a
Are there overhead wires? ☐ YES ☐ NO If YES, only trees that have a mature height of less t

CITY OF ANN ARBOR CODE: CHAPTER 40, SECTION 5:12, TREES AND OTHER VEGETA
The city administrator shall have the sole authority over the planting, maintenance and removal of trees in the street r
person without written permission of the city administrator shall plant, remove, limb, spray or take any action which
the base of which is located in the street right of way or other city land.

OFFICE RECORD:

PRE-WORK INSPECTION DATE: APPROVED BY CITY STAFF
COMMENTS:
CITY STAFF SIGNATURE & TITLE:

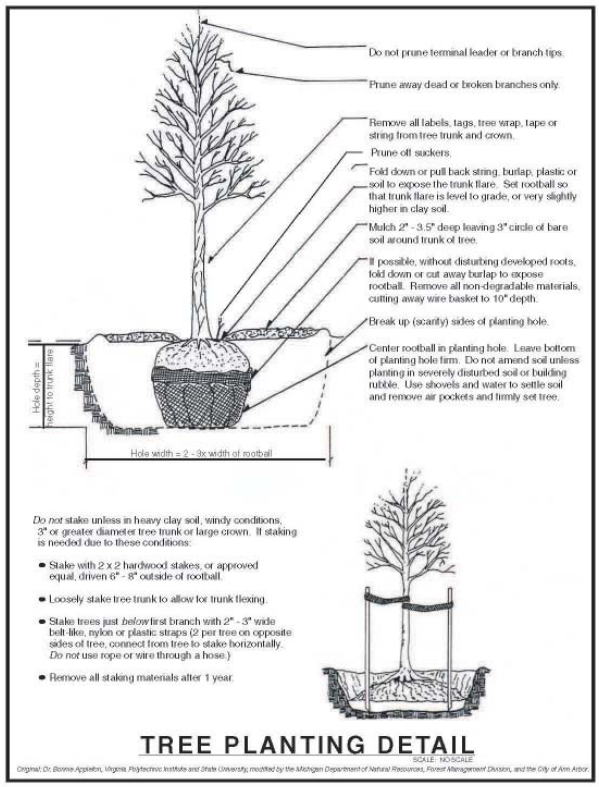
POST-WORK INSPECTION DATE: APPROVED BY CITY STAF
COMMENTS:
CITY STAFF SIGNATURE & TITLE:

City of Ann Arbor
Landmark Tree List

Landmark Tree (Chapter 57): Any tree 24-inch DBH or greater that is a type and DBH equal to or greater than shown on the landmark tree list in the land development regulations and that has a health and condition factor of over 50% based on the standards established by the International Society of Arboriculutre. These standards consider the soundness of the trunk, the growth rate, the structure of the tree, the presence of insects aor disease, the crown development and the life expectancy. The definition of a landmark tree does not include any tree identified as an invasive species on the city's invasive species list.

Landmark Tree List from Land Development Regulations

Common Name	Scientific Name	DBH
Ash	Fraxinus spp. (no cultivars)	18"
Basswood	Tilia spp.	18"
Beech	Fagust spp.	18"
Buckeye (Horsechestnut)	Aesculus spp.	
Cherry, Black	Prunus serotina	
Elm	Ulmus spp. (except pumil	
Fir	Abies spp.	
Fir, Douglas	Pseudotsuga menziesii	
Kentucky Coffeetree	Gynocladus dioicus	
Maple, Silver	Acer saccharinum	
Pine	Pinus spp.	
Spruce	Picea spp.	
Sycamore; London Plane	Platanus spp.	
Tuliptree	Liriodendron tulipifera	
Walnut, Black	Juglans nigra	
Hickory	Carya spp.	
Honeylocust	Gleditsia triacanthos	
Maple	Acer spp. (unless otherwi	
Oak	Quercus spp.	
Arborvitae	Thuja occidentalis	
Bald Cypress	Taxodium distichum	
Birch	Betula spp.	
Black Tupelo	Nyssa sylvatica	
Cherry, Flowering	Prunus spp.	
Crabapple (cultivar)	Malus spp.	
Dawn Redwood	Metasequoia glyptostrob	
Eastern Hemlock	Tsuga canadensis	
Ginkgo	Ginkgo biloba	
Hackberry	Celtis occidentalis	
Hawthorn	Crataegus spp.	
Larch/Tamarack	Larix spp.	
Pear	Pyrus spp.	



Current Urban and Community Forest Management

Forestry and City Staff. The Field Operations Unit's Forestry crews are responsible for the daily management and maintenance of Ann Arbor's urban and community forest resource, including tree removal, tree planting, stump removal and trimming. Systems Planning, the City unit responsible for asset management and planning, houses the Urban Forestry and Natural Resources Planning Coordinator whose responsibilities include, long-range planning of the urban and community forest, public outreach, and site plan reviews. Field Operations and Systems Planning, both within the Public Services Area, work together on urban and community forestry related issue.

Strength: Knowledgeable Staff

Forestry and Systems Planning have knowledgeable staff with decades of experience in tree care and management. They have an acute understanding of the value that residents place on the city's urban and community forest resource.

Challenge: Forestry Staff Reductions

Staffing levels have decreased approximately 30% city-wide over the last decade from just over 1,000 full-time employees (FTEs) in 2001 to fewer than 700 FTEs in 2013. Forestry has not been immune to the staff reductions, with 15 FTEs and 10 seasonal workers employed in Forestry in 2001 and eight FTEs, two vacant FTE positions and four seasonal workers in 2013.

Three of Forestry's FTEs possess the technical skills and ability to trim and remove large trees; and five Forestry FTEs possess the technical skills and ability to do small tree work, operate equipment, or serve on a grounds crew. To supplement the efforts of city Forestry crews, the City contracts with a private landscape contractor for tree planting and hires private tree care companies, as needed, for tree removal, stump removal and storm damage clean-up. Prior to 2004, Forestry also utilized contractors for routine tree pruning.

The City maintains a ratio of trees to FTEs of 7,125:1, based on 57,000 trees, planting sites and stumps. According to information provided by municipal arborists around the United States in 2010 [2], the median ratio of trees to FTEs utilizing mostly private contractors was 6,000:1, and utilizing city staff exclusively was 4,500:1. The city's tree to FTE ratio of 7,125:1 exceeds both ratios and has an impact on Forestry's ability and capacity to maintain the city's urban and community forest resource. See Appendix B for Forestry Staff level and contractor recommendations.

City Forestry crew removing a tree (2009)

2 Kay Sicheneder, Society of Municipal Arborist Listserve (members only), August 2010

Tree Management. The main tree management activities of Forestry's street tree program in 2013 were the removal of dead/dying/hazardous trees and tree planting. Work priorities were driven by hazards identified in the tree inventory, staff observations and resident requests. The main tree care activities in city parks were pruning and tree removal, with work priorities set by the tree inventory, staff observations and resident requests. Table 8 summarizes Forestry's street tree management activities completed between July 1, 2012- and June 30, 2013 (Fiscal year 2013, FY 13)

Tree Management Activity*	Number of Street Trees FY 13	Number of Park Trees FY 13
Tree Planting	1135	72
Tree Removal	506	41
Tree Pruning	322**	550
Stump Removal	298	4

**Tree activities related to the February 2013 winter storm are not reflected in the numbers in this table*
***Tree pruning completed only for site clearance, immediate hazards or storm damage*

Table 8: Summary of Forestry street tree management activities for FY 13 (07/01/2012-06/30/2013)

Strength: City Park Tree Management

City park tree maintenance and planting is funded through the Park Millage. The maintenance issues that affect street trees do not affect park trees because there are fewer park trees to manage and the Park Millage provides adequate resources to manage them.

Challenge: Current Street Tree Management Program is Reactive

Historically, Forestry maintained a proactive program providing routine maintenance of public trees performed by city crews and contractors. Proactive management activities included a 10-year street tree pruning cycle, tree planting, tree removal and stump removal. Over the last decade two events significantly impacted Forestry's management of city trees and changed the program from proactive to reactive-- the discovery of emerald ash borer (EAB) in Ann Arbor in late 2003 and budget reductions caused in part by the 2008 economic downturn.

As detailed in Chapter 2, from 2004 to 2008 the City managed full-scale operations to remove publicly-managed ash trees. The exclusive focus on ash tree removals caused the maintenance and management of the remaining city trees to be deferred. Reductions to Forestry's budget, its street tree operation budget was 29% higher in FY 07 than it is in FY 14, has further impacted Forestry ability maintain the urban and community forest.

The impacts of EAB and budget reductions have led to a reactionary forestry program and a backlog in tree pruning, tree removals, stump removals and tree planting that persists today (see Table 9). The result of this reactionary program is a shift in management activities focusing on tree removals and tree planting and not on proactive routine tree pruning. Table 10 compares management activities today (reactive program) and prior to 2004 (proactive program).

Management Activity	Street Tree Backlog
Tree Removals	1,412
Priority Pruning (hazardous trees requiring immediate pruning)	3,110
Routine Tree Pruning	38,741
Stump Removal	1,317
Plant Tree	5344

Table 9: Backlog of tree management activities (as of 07/01/2013)

Street Tree Management Activity	Approximate Number of Trees Per Year Prior to 2004 (Proactive Program)	Number of Trees Per Year FY13: July 1, 2012- June 30, 2013 (Reactive Program)
Tree Planting	500-800	1135
Tree Removal	750	506
Tree Pruning	4200**	322***
Stump Removal	750	298
**Tree activities related to the February 2013 winter storm not reflected in the numbers above.* ***10 year pruning cycle (each street tree pruned once every 10 years)* ****Tree pruning only for site clearance, immediate hazards or storm damage*		

Table 10: Comparison of Forestry's yearly street tree management activities prior to 2004 (proactive) and in FY 13 (reactive)

Street tree that broke at the trunk during a summer storm

Challenge: Lack of a systematic, proactive routine pruning cycle

Routine tree pruning is an important component of a sustainable urban and community forest management program. Trees pruned on a routine basis develop proper form and structure leading to a variety of benefits[3], including:

- Lower cost per tree trimmed compared to reactive pruning done in response to storm damage, sight clearance, or immediate hazards
- Early identification and correction of insect/disease problems leading to fewer tree mortalities
- Reduction in storm related tree damage
- Lower future maintenance costs
- Reduction of tree-related service requests and improved customer service
- Development of a healthy and sustainable urban and community forest

The routine pruning cycle that was in effect until 2004, pruned each city street tree once every 10 years (10-year pruning cycle). Today, street trees are pruned to address sight clearance issues, remedy immediate hazards and respond to storm damage; pruning is not performed on a routine or systematic basis. With trees no longer pruned on a regular cycle, some city street trees have not been pruned since 1995.

The lack of routine maintenance has affected customer service and resident satisfaction with the city's urban and community forestry management program. Tree pruning is the number one resident requested tree management activity and based on a 2010 City survey, conducted as part of the UCFMP development, over 44% of residents felt that city street trees were not well-maintained.

Continuing to operate a reactive management program will not only negatively impact customer service but it has already begun to adversely affect the health and condition of Ann Arbor's urban and community forest resource. The future of a sustainable urban and community forest will depend on the proactive pruning and maintenance of the existing tree canopy.

Branches and trees damaged during a summer storm piled along the street and in the bed of the City's Prentice. (July 2010)

3 Richards, S., Stutz, B. & K. Yoskowitz. (2004). *Interagency Study of Tree Management Practices* (OLO Report 2004-9. Montgomery County, Maryland. Office of Legislative Oversight. Retrieved from http://www6.montgomerycountymd.gov/content/council/olo/reports/pdf/trees.pdf

Funding. Forestry Operations are funded through the Stormwater Fund, Parks Millage, Elizabeth Dean Fund, and Michigan Department of Environmental Quality State Revolving Fund loan program. The General Fund provides funding for City of Ann Arbor Retiree legacy costs. A description of each funding source is provided below and is followed by Tables 11 and 12, which provide detailed information on Forestry's budget.

General Fund. Prior to FY 12, Forestry's street tree operations were funded through the City's General Fund. The General Funds is funded through property tax revenues and supports core City services including Police, Fire, and city Administration. Forestry retiree legacy costs for Forestry staff who retired prior to FY12 ('Administration' in Table 13) is the only Forestry budget item currently supported by the General Fund.

Stormwater Fund. Forestry street tree operations are funded through the City's Stormwater Fund, an enterprise fund for the collection and disposal of the city's stormwater. An enterprise fund is a fund established to account for operations that are financed and operated in a manner similar to private business enterprises. The intent of an enterprise fund is to finance the full costs of providing the goods or services through charges and fees thus removing the expenses from the tax rate.

Street tree management was moved to the City's Stormwater Fund in FY 12. Forestry was shifted to this funding source because of the positive contribution that the city's publicly-managed trees have on the city's stormwater system. Ann Arbor's public trees are estimated to intercept 65 million gallons of stormwater annually, keeping it from entering the stormwater system and improving the quantity and quality of stormwater.

Parks Millage. The Parks Maintenance and Capital Improvements Millage is a six-year millage for 1.10 mills. It was first approved by City of Ann Arbor residents in November 2006 and was renewed in November 2012. The Parks Millage funds tree trimming, planting and removal in city Parks and Natural Areas; this funding source cannot be used to fund planting or tree maintenance activities along city streets.

Elizabeth R. Dean Trust Fund. In 1964, Elizabeth R. Dean willed nearly $2 million to the public trees of Ann Arbor, to be "used to repair, maintain and replace trees on city property, perpetually."[4] The Dean Fund is an independently managed fund in Forestry's operating budget. The Dean Fund Committee, established by City Council in 1974, provides guidance on the use of the Dean Fund's annual interest income and makes budget recommendations to City administration.

In accordance with Ms. Dean's Will, the Trust can be invested only in United States Treasury Notes. Over the last several decades the annual interest income generated from the Dean Fund Trust has decreased substantially as US Treasury Note interest rates have declined. In the mid-1980s the Dean Fund Trust's annual interest income was over $200,000; in FY 14 the annual interest income is $25,000.

4 Elizabeth R. Dean, Last Will and Testament, December 3, 1948.

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY STATE REVOLVING FUND LOAN PROGRAM (SRF). Michigan's Water Pollution Control Revolving Fund, known as the State Revolving Fund (SRF), is a low-interest loan financing program that assists municipalities with the construction of water pollution and control facilities. The SRF Program allows municipalities to finance project costs, including construction, over a 20-year period at an estimated interest rate of 2%. Over the last several years, the program has also included the opportunity for projects to receive "Green" funding, which provides for loan principal forgiveness of up to 50% of the environmental portion of a project.

The City collaborates with the Washtenaw County Water Resources Commissioner (WCWRC) to draft a SRF Plan that is subsequently submitted to the Michigan Department of Environmental Quality (MDEQ). The SRF Plan includes a list of potential projects that the City and County would like to be considered by the MDEQ for loan funding.

In 2010, the WCWRC and the City submitted an SRF plan to the MDEQ that included a project to plant 1,000 street trees per year for 5 years, at a total estimated cost of $1.5 million. The project was approved by the MDEQ and the initial project approval allowed the City to submit a tree planting plan to MDEQ each fiscal year requesting loan funding for that year's tree planting activities. The city has received loan funding for tree planting in FY 12, FY 13 and FY 14/15 (combined loan). All of the loans were eligible for "Green" funding and the City received approximately $600,000 in loan forgiveness (50% of the loan amounts). The debt service on the SRF tree planting loans is paid by the city's Stormwater Fund.

Tree planting funded by the SRF program (November 2013)

Strength: Utilization of grant funding and innovative funding sources

The Forestry program utilizes innovative funding sources and grant funding, including the MDEQs SRF Loan Program, Michigan Department of Natural Resources Urban and Community Forestry Grants, USDA Forest Service Grants and the Great Lakes Restoration Initiative grant program. These funding sources, together with the Elizabeth Dean Fund Trust, help to fund specific programs and activities, and to supplement Forestry's budget.

BUDGET*	FY 07	FY 08	FY 09	FY 10	FY 11	FY 12**	FY 13	FY 14
General Fund	$2,076,298	$1,282,601	$1,357,462	$1,082,703	$1,219,285	$379,822	$102,144	$107,996
Stormwater Fund	$0	$0	$0	$300,000	$418,800	$892,567	$906,414	$771,674
SRF Loan* **	$0	$0	$0	$0	$0	$300,00	$300,000	$300,000
TOTAL Street Tree Budget- including Administration	**$2,076,298**	**$1,282,601**	**$1,357,462**	**$1,382,703**	**$1,638,085**	**$1,500,745**	**$1,308,558**	**$1,179,670**
TOTAL Street Tree Budget % Change from prior fiscal year	**+3%**	**-38%**	**+6%**	**+2%**	**+18%**	**-4%**	**-17%**	**-10%**
Street Tree Budget (Operations ONLY)** **	**$1,412,507**	**$892,553**	**$923,479**	**$944,175**	**$1,182,893**	**$1,084,401**	**$1,114,330**	**$1,000,483**
Street Tree Operations Budget % change from prior fiscal year	**-10%**	**-41%**	**+7%**	**+2%**	**+26%**	**-14%**	**+1%**	**-12%**

* A separate fund was created to account for the removal of dead/dying ash trees. That fund was not included in this table because it was established to address a specific special need. City Council Resolution (R-640-12-05) approved the appropriation of funds for ash tree removals from prior year fund balances of the Risk Fund, Park Millage (park ash trees),Park Operations and Forestry budget, General Fund and Major Streets Operating Budget. Additional funding for ash tree removals came from yearly Forestry and Park operations budgets. Total ash tree removal expenditures: $5,611,614.

**Beginning in FY 12 Forestry Operations Budget moved from General Fund to Stormwater Fund. The General fund now covers Forestry retiree legacy costs and does not fund Forestry operations.

***Michigan Department of Environmental Quality State Revolving Fund loan (SRF) to fund street tree planting

****Operations covers tree maintenance activities, including tree removal, tree planting, stump removal and tree pruning

Table 11: Forestry Operations Street Tree Budget FY 07 - FY 14

Challenge: Decrease in funding for street tree maintenance operations

The FY 14 Forestry street tree operations budget is 29% less than it was in FY 07. The reduction in Forestry's budget has impacted its ability to sustainably manage the city's urban and community forest resource and to deliver the level of service that meets resident expectations. Table 11 provides Forestry's street tree budget per fiscal year from FY 07 - FY 14.

NAME	GENERAL FUND				STORMWATER FUND			
TYPE of FUND	General				Enterprise			
CITY BUDGET BOOK DESCRIPTION	The major municipally owned fund which is created with city tax receipts and which is charged with expenditures from such revenues. Funds core services, for example: Police, Fire, Attorney's office, Treasurer/Finance				Fund established to account for operations that are financed and operated in a manner similar to private business enterprises. The intent is that the full costs of providing the goods/services be financed primarily through charges & fees, removing the expenses from the tax rate. ***Stormwater Fund*** is an Enterprise Fund for the collection & disposal of the city's stormwater.			
NOTES	(1) The General Fund historically funded tree maintenance and tree planting activities. (2) Beginning in FY 12 Forestry retiree legacy costs are the only Forestry item funded through the General Fund.				(1) Since Fiscal Year (FY) 10, tree planting has been funded through the Stormwater Fund. (2) Beginning in FY 12 all Forestry Operations have been funded through the Stormwater Fund.			
	GENERAL FUND BUDGET				STORMWATER FUND BUDGET			
ACTIVITY	FY 11	FY 12	FY 13	FY 14	FY 11	FY 12	FY 13	FY 14
Administration	$300,972	$225,267*	$102,144*	$107,996*	$0	$108,166	$92,084	$71,191
Special Events	$0				$0	$0	$150	$0
Operation	$31,009				$0	$98,597	$114,731	$121,946
Field Investigations	$19,214				$0	$0***	$0	$0
General Tree Care	$2,101				$0	$37,744	$40,915	$48,780
Post Plant Care	$0				$0**	$9,055	$9,067	$13,401
Trimming	$252,633				$0	$165,840	$177,249	$164,456
Storm Damage	$60,227				$0	$71,644	$65,254	$69,543
Stump Removal	$27,716				$69,620	$96,672	$80,943	$52,899
Tree Planting	$5,076				$349,180 **	$90,476 ****	$95,990 ****	$128,364 ****
Tree Removals	$336,117				$0	$214,373	$230,031	$101,094
Adopt-a-Park	$0				$0	$0	$0	$0
Debt Service	$154,220	$154,555						
TOTALS	**$1,219,285**	**$379,822**	**$102,144**	**$107,996**	**$418,800**	**$892,567**	**$906,414**	**$771,674**
Michigan Department of Environmental Quality State Revolving Fund Loan for Tree Planting**					**FY 12: $300,000**			
FISCAL YEAR BUDGET TOTAL ALL FUNDS	**FY 11: $3,058,279**				**FY 12: $2,483,938**			

*Retiree Legacy Costs
**"Tree Planting" includes "Post Plant Care"
***"Field Investigations" are conducted based on customer service requests for a specific tree management activity and have been combined with other activities (i.e. Trimming, Tree Planting, Tree Removals) beginning in FY 12.
****City received Michigan Department of Environmental Quality State Revolving Loan Fund (~$300,000/year) for Tree Planting in FY 12-15. Loans provides up to 50% forgiveness and each loan will be repaid over a 20 year period.
*****Adopt-a-Park/Garden funded out of Park Operations budget and not Forestry Operations budget
******Dean Fund Budget: In addition to the annual interest income, the FY 11-14 also includes appropriations from the Dean Fund's fund balance which comes from the unspent budget from previous fiscal years.

Table 12: Forestry Budget by Fund FY 11-FY 14 (continued on next page)

PARKS MILLAGE	ELIZABETH DEAN FUND
Special Revenue	Trust
To account for the proceeds of specific revenue sources, which are restricted legally to expenditure for specific purposes. ***Parks Maintenance and Capital Improvements Millage*** is a Special Revenue Fund Millage that provides certain maintenance, repair costs and capital improvements of the Parks system.	To account for assets held by the city in a trustee capacity and the expenditure of such funds. ***Elizabeth Dean Fund*** is a Trust Fund that is a permanent fund used to account for monies provided by a private bequest to finance tree planting and maintenance. The principal amount of the bequest is to remain intact and invested. Investment earnings are used for the above stated purposes.
(1) Parks millage money can only fund tree trimming, planting and removal in city Parks it cannot be used for any tree maintenance activities on the streets.	(1) The Elizabeth Dean Fund Committee provides budget recommendations to Administration and allocates the budget for special projects each year.

PARKS MILLAGE BUDGET				ELIZABETH DEAN FUND BUDGET******			
FY 11	**FY 12**	**FY 13**	**FY 14**	**FY 11**	**FY 12**	**FY 13**	**FY 14**
$0	$0	$0	$0	$33	$37	$39	$77
$0	$0	$0	$0	$0	$0	$0	$0
$148,060	$219,159	$210,614	$198,416	$0	$0	$0	$0
$5,328	$0***	$0	$0	$0	$0	$0	$0
$12,500	$7,053	$7,671	$3,750	$0	$0	$0	$0
$57,925	$49,215	$50,459	$60,534	$20,000	$18,473	$17,573	$12,600
$282,047	$187,806	$187,715	$241,968	$30,000	$22,985	$19,985	$10,000
$7,596	$12,653	$13,313	$5,572	$0	$0	$0	$0
$88,858	$82,072	$89,796	$67,865	$0	$1,500	$1,500	$1,500
$316,172	$122,442	$227,427	$209,401	$45,000	$25,235	$24,235	$19,385
$356,615	$300,989	$304,473	$243,636	$0	$16,485	$16,485	$11,500
$50,606	$0*****	$0*****	$0*****	$0	$0	$0	$0
$1,325,161	**$981,389**	**$1,091,468**	**$1,031,142**	**$95,033**	**$84,715**	**$79,817**	**$55,062**
FY 13: $300,000				**FY 14: $300,000**			
FY 13: $2,479,843				**FY 14: $2,265,874**			

Activity Descriptions **Administration:** covers a portion of the costs of administrative staff who perform work for Forestry (e.g. administrative support staff, urban forestry planner, field operations manager, GIS coordinator). **Special Events:** costs associated with a special event (e.g. UM Football Game). **Operations**: costs associated with the Forestry Supervisor and items that are not specific to an activity (e.g. training, radios, utility expenses). **Field Investigations:** See *** above. **General Tree Care, Post Plant Care, Trimming, Storm Damage, Stump Removal, Tree Planting, Tree Removals:** covers staff salaries/benefits, equipment and contracted services related to the particular tree management activity. **Storm Damage:** covers costs detailed previously for tree related expenses related to a storm event. **Adopt-a-Park**: Funds Forestry related activities (e.g, tree planting) for the program. **Debt Service:** Debt repayment.

Table 12: Forestry Budget by Fund FY 11-FY 14 (continued)

Coordination and Cooperation. The urban and community forest is not only impacted by the activities of City Forestry crews, but also by those of other city units and outside entities, including the University of Michigan, DTE Energy, Washtenaw County Water Resources Commissioner, the Ann Arbor Downtown Development Authority (DDA) and private contractors. Some of their activities positively impact the urban and community forest, while others can have a negative impact, particularly when coordination among the parties is lacking. Coordination and cooperation among internal and external parties whose responsibilities may not be forestry related, but do impact city trees, is essential for maintaining a sustainable urban and community forest resource. Tables 13 and 14 summarize the City units and outside entities whose work impacts the city's urban and community forest. Recommendations in the UCFMP will help to strengthen existing relationships and find opportunities to develop new relationships with those whose activities impact the city's urban and community forest resource.

The base of this street tree had to be cut to access the water curb stop box to repair a resident's water service. To avoid future conflicts, Forestry staff and city tree planting contractors now coordinate with Miss Dig and City utility staff to locate all underground utilities prior to planting. New trees are planted at least 8 feet from underground utility service lines and access points.

CITY UNIT	Role and Impact of City Units on Urban & Community Forest Management Activities				
	Planning	Planting	Pruning/ Maintenance	Tree Removal	Volunteer Efforts
Systems Planning- Public Services Asset management, long-range & strategic planning & coordination of constructed and natural infrastructure systems.	X	X	X	X	X
Field Operations - Public Services Maintenance of city assets including public trees, parks, streets, signs/signals & public utility infrastructure.	X	X	X	X	X
Project Management- Public Services Designs & constructs utility, roadway, & sidewalk projects; coordinates and inspects the utility/public roadway with work of developers.	X/B	X/B	X	X/B	
Parks & Recreation- Community Services Manages City of Ann Arbor parks facilities including parks and golf courses. Designs, maintains, and manages park features and assets.	X/B	X/B	X	x	X
Planning & Development - Community Services Provides expertise and information to advise and guide the development, redevelopment, construction and preservation of the City of Ann Arbor.	X	X		X	
Natural Area Preservation (NAP) - Community Services Conducts plant and animal inventories, ecological monitoring, and stewardship projects in city parks and natural areas. Coordinates volunteer efforts and community involvement.		X	X		X
Emergency Management - Safety Services Prepares for potential natural and man made disasters that may affect the community through thorough and effective planning.	X				
Community Standards- Safety Services Responsible for enforcing City codes and ordinances that protect the public health, welfare and safety.			X	X	
X= Coordinating on urban and community forest management activities					
B= Better coordination needed/opportunities for coordination on future projects					

Table 13: Role and Impacts of City units on urban and community forest management activities

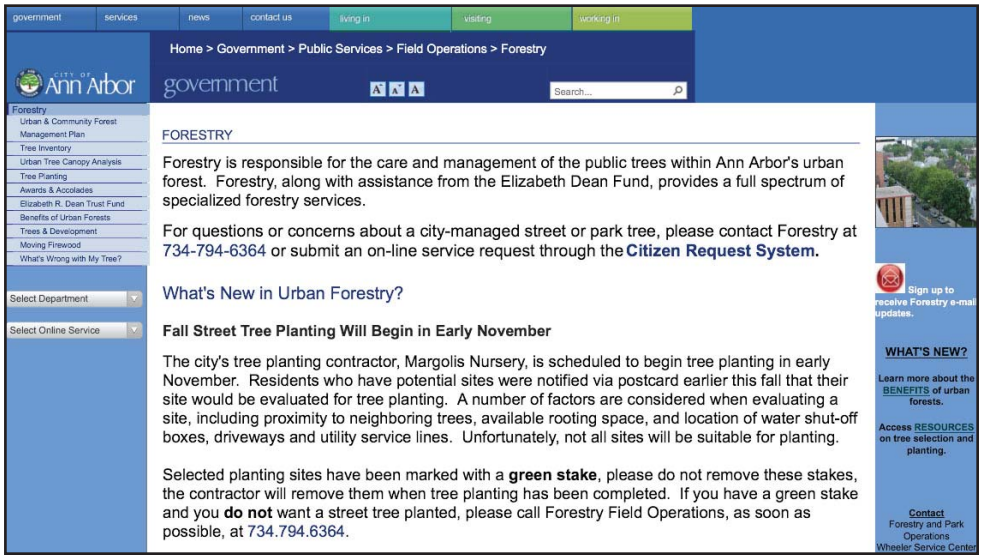
OUTSIDE ENTITY	Role and Impact of Outside Entities on Urban and Community Forest Management Activities				
	Planning	Planting	Pruning/ Maintenance	Tree Removal	Volunteer Efforts
Office of the Washtenaw County Water Resources Commissioner	X	X		X	
Responsible for stormwater and flood control systems (county owned drains) within Washtenaw County. Assists City in securing State Revolving Fund (SRF) loan program funding for tree planting.					
Washtenaw County Parks	B	B			B
Responsible for the planning, care and management of county-owned parks in Washtenaw County.					
DTE Energy and MichCon Gas	B		B	B	
Responsible for providing gas and electric utility service to residents and businesses within the City of Ann Arbor. DTE Energy prunes city trees to provide clearance of overhead utility lines. MichCon Gas maintains gas service lines that typically run within the lawn extension between the sidewalk and the curb where street trees also grow.					
Michigan Dept. of Natural Resources (MDNR) Urban & Community Forestry Program	X	X			
Provides urban forestry technical and financial assistance to municipalities and non-profit organizations.					
Michigan Dept. of Transportation (MDOT)	B	X	X	X	
Responsible for planning, designing and operating MDOT and federally owned transportation systems in Michigan. MDOT provides the City with funding for limited tree maintenance on State of Michigan trunklines within the city.					
Michigan Dept. of Environmental Quality (MDEQ) State Revolving Fund loan program	X	X		X	
The MDEQ's State Revolving Fund loan program provides low interest loans to the City through the Office of the Washtenaw County Water Resources Commissioner for tree planting.					
Huron River Watershed Council	X	B			B
Non-profit coalition of residents, businesses, and governments dedicated to protecting, rehabilitating and sustaining the Huron River watershed. Developing a green infrastructure vision for the watershed.					
University of Michigan	X/B	B	B	B	B
The largest public higher education institution in Ann Arbor. The University is one of the largest land holders in Ann Arbor and their planning and development activities can impact city managed trees.					
Ann Arbor Public Schools	B	B	B	B	B
Ann Arbor Public Schools manage over 725 acres of land within the city, including school forests.					
Public and Private Contractors	B	B	B	B	
Contractors hired by the City, private or institutional property owners for construction, demolition or tree care activities.					
Southeast Michigan Council of Governments (SEMCOG)	X	B	B		
Metropolitan planning organization for southeast MI. Coordinates regional planning efforts for transportation systems, revitalize communities, spur economic development and improve the environment. They have developed a Green Infrastructure Vision for the region that includes increasing tree canopy.					
X= Coordinating on urban and community forest management activities					
B= Better coordination needed/opportunities for coordination on future projects					

Table 14: Role and impacts of outside entities in urban and community forest management activities

Public Outreach & Communication

Letters and Postcards. Forestry notifies residents of upcoming activities through mailed letters and postcards. This communication provides an opportunity for residents to both be prepared for the upcoming activity and to contact the City if they have questions or concerns about the activity.

City of Ann Arbor Forestry Web Pages. The City of Ann Arbor's Forestry web pages (www.a2gov.org/urbanforestry) provide the community with information on a variety of topics, including tree work activities, the UCFMP, tree benefits , tree planting information and programs and common insects and diseases that affect trees. Forestry's contact information is also provided if residents have questions or concerns about a city-managed tree.



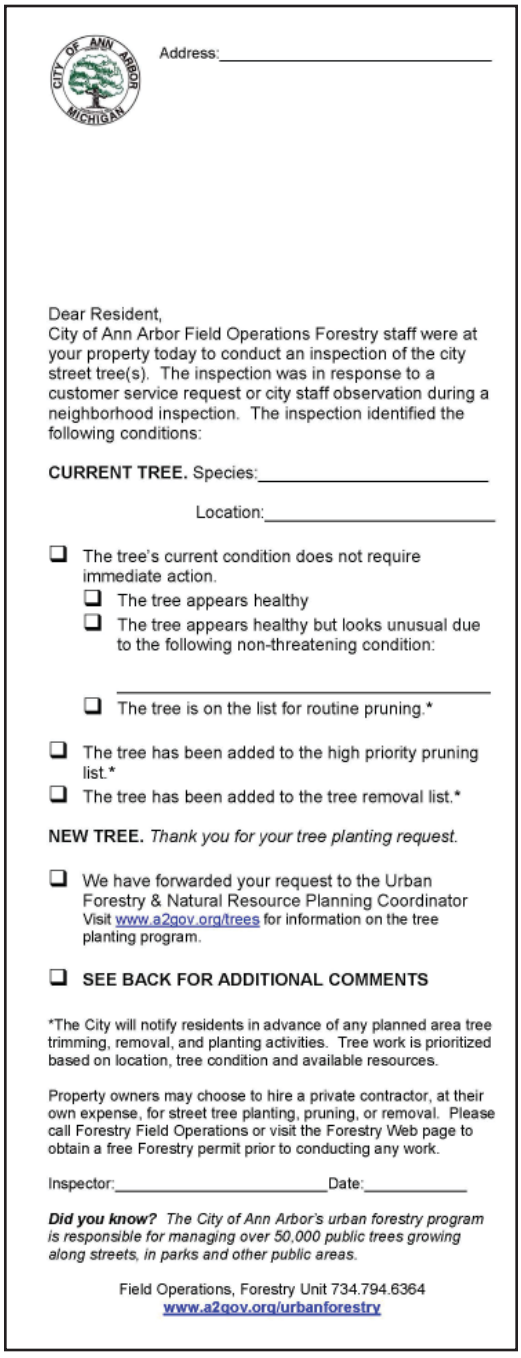
Email Subscription Service (GovDelivery). The City utilizes GovDelivery an email subscription service that allows residents to sign-up to receive email messages on specific topics of interest, including "Forestry and Urban Forestry Management Plan". Email notifications are periodically sent out by city staff to subscribers of the urban and community forest email list.

Presentations, Public Workshops and Meetings. City of Ann Arbor Public Services staff provide presentations on the urban and community forestry program and also hold topic specific workshops and meetings.

- Neighborhood-specific topics, such as upcoming forestry activities, tree planting needs and insects/diseases affecting trees.
- Presentations to clubs and organizations about the City's urban and community forestry program and biological threats to Ann Arbor's trees.
- Meetings, workshops and focus groups related to the development of the UCFMP (see Chapter 2 "Public Engagement Process").
- Educational presentations for the City's Citizen Pruner program that trains volunteers on how to properly prune and train young trees.

Press Releases and Social Media. The City utilizes press releases and social media to promote forestry activities and events. Press releases are sent to all media outlets (print, online, television and radio) and information is also posted on the City's social media sites, including Facebook and Twitter.

Door hangers. In the fall of 2013 Forestry staff piloted a program to notify residents of street tree inspections by providing a door hanger detailing the findings of the inspection and any future action that may be taken.



Address:_____

Dear Resident,
City of Ann Arbor Field Operations Forestry staff were at your property today to conduct an inspection of the city street tree(s). The inspection was in response to a customer service request or city staff observation during a neighborhood inspection. The inspection identified the following conditions:

CURRENT TREE. Species:_____

Location:_____

- ❑ The tree's current condition does not require immediate action.
  - ❑ The tree appears healthy
  - ❑ The tree appears healthy but looks unusual due to the following non-threatening condition:

    _____
  - ❑ The tree is on the list for routine pruning.*
- ❑ The tree has been added to the high priority pruning list.*
- ❑ The tree has been added to the tree removal list.*

NEW TREE. *Thank you for your tree planting request.*

- ❑ We have forwarded your request to the Urban Forestry & Natural Resource Planning Coordinator Visit www.a2gov.org/trees for information on the tree planting program.
- ❑ **SEE BACK FOR ADDITIONAL COMMENTS**

*The City will notify residents in advance of any planned area tree trimming, removal, and planting activities. Tree work is prioritized based on location, tree condition and available resources.

Property owners may choose to hire a private contractor, at their own expense, for street tree planting, pruning, or removal. Please call Forestry Field Operations or visit the Forestry Web page to obtain a free Forestry permit prior to conducting any work.

Inspector:_____Date:_____

Did you know? *The City of Ann Arbor's urban forestry program is responsible for managing over 50,000 public trees growing along streets, in parks and other public areas.*

Field Operations, Forestry Unit 734.794.6364
www.a2gov.org/urbanforestry

Volunteer Opportunities. Since 2004, Rotary Club of Ann Arbor (RCAA), working in partnership with the City, has provided financial and volunteer assistance to replant more than 1,600 trees lost to EAB in city parks. Utilizing knowledge gained from the RCAA park plantings, the City piloted a volunteer street tree planting program with residents of the Virginia Park neighborhood in 2009. Over 50 volunteers helped to plant 48 new street trees in the neighborhood. Three more neighborhood volunteer street tree planting events have occurred since the pilot program, with financial and volunteer support of the RCAA. All trees planted through volunteer programs are added to the tree inventory and are included in the City's yearly tree planting totals.

Following up on the success of the volunteer street tree planting program, the City created the Citizen Pruner program in 2011. The Citizen Pruner program trains citizen volunteers how to prune young trees to improve their form and develop a strong structure. Citizen Pruner volunteers use their newly acquired tree pruning skills during City-sponsored street tree pruning work days.

These programs provide volunteers the opportunity to learn a tree management skill (e.g. tree planting, tree pruning) that they can use to help improve the urban and community forest on both public and private property. The programs are creating tree stewards within the community who can serve as advocates for Ann Arbor's trees and can help to build awareness about them to their family, friends and neighbors.

Strength: City Actively Works to Engage the Community

The City actively works to notify and engage community members about issues and activities related to the urban and community forest. A variety of outreach, communication and engagement methods are utilized to reach the community. Opportunities are provided for citizens to get involved and be active in maintaining a healthy urban and community forest.

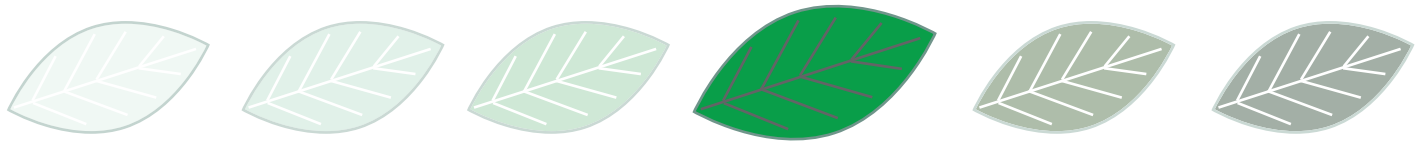
Challenge: Communications Do Not Always Reach Affected Residents

Despite the City's best efforts to engage residents, there are times when communications do not reach residents affected by City forestry activities. Traditional methods of engagement, including mailings and press articles, may reach some of the community but not all. The City must continue to identify new ways to connect and engage with residents.

Virginia Park residents prepare to plant street trees in their neighborhood (November 2009)

Rotary Club of Ann Arbor members participate in a city park tree planting (November 2010)

City of Ann Arbor Citizen Pruner volunteers prune neighborhood street trees during a work day event (December 2012)



4 Plan Vision, Goals & Targets

CHAPTER 4: PLAN VISION, GOALS AND TARGETS

VISION

Ann Arbor's urban and community forest is a prominent feature of the city, valued by its citizens for the positive contributions it makes to the quality of life and character of the community. The urban and community forest is a vital part of the city's green infrastructure system and is managed sustainably through sound practices, policies and community stewardship to provide environmental, social and economic benefits today and into the future.

GOALS

Overarching Goal

Sustainably protect, preserve, maintain and expand Ann Arbor's tree canopy and urban and community forest.

To provide a sustainable urban and community forest resource, existing tree canopy should be preserved and maintained while also ensuring the resource is diverse and resilient to changing pressures, supports local ecosystem health and biodiversity, and is managed for long-term survivability with a mixture of tree ages and species to provide a continuous level of canopy cover over time.

Supporting Goals

GOAL #1: Develop practices and policies to support a sustainable urban and community forest.

City ordinances, operation and maintenance procedures and policies should be aligned with supporting a sustainable, healthy, safe and expanding urban and community forest.

GOAL #2: Devise and implement sustainable funding strategies that support the urban and community forest, recognizing the economic, social and environmental value of trees.

The urban and community forest generates many benefits and cost savings for the community, but managing it to maximize these benefits and minimize risk requires public support, funding and long-term planning. The level of funding and range of funding sources must match the desired management level.

GOAL #3: Enhance and support the ecological functions that the urban and community forest provides.

The urban and community forest should be managed to support and enhance the many valuable ecological benefits that trees provide to the community during their life cycle, including stormwater management, wildlife habitat, erosion control, and improvement of air quality.

Photo Credit: John Sullivan

GOAL #4: Ensure communication and coordination among city units and outside entities about proper urban forestry management standards and protection measures for Ann Arbor's tree canopy.

City units and outside entities performing activities that impact city-managed trees must follow standards for protection and management of these trees. They must communicate planned activities and coordinate their efforts with Forestry staff to ensure proper, consistent and transparent urban and community forest management.

GOAL #5: Build and maintain community support and knowledge about the benefits of the urban and community forest and its management.

Building long-term support for the urban and community forest resource and management systems, on both public and private property, will require a community that understands its value, is informed and educated about current forestry activities, policies and practices and understands the risk of not managing it.

GOAL #6: **Engage the community, both individuals and organizations, in the collective management of the urban and community forest.**

The community can play a key role in the management of the urban and community forest by participating in planting, maintenance and other tree management activities. Training and engaging residents in urban and community forestry operations will help build awareness, long-term support and stewardship of the urban and community forest.

GOAL #7: **Promote amenity uses of the urban and community forest.**

The urban and community forest provides ecosystem goods and services during and beyond its life cycle, offering further benefits to the community (e.g. local woodworkers and artisans using wood from dead trees; trees as a food source). These and other uses of the urban and community forest should be identified, explored and promoted.

TARGETS

Targets are benchmarks or metrics used to measure the success in implementing a plan, project or program. The UCFMP Targets provided below were developed to provide one way to measure the progress of the plan's implementation.

TARGET 1: Achieve canopy cover goals based on each land use category within 30 years.

LAND USE CATEGORY	CURRENT CANOPY COVER	CANOPY COVER GOAL
Commercial	10%	15%
Industrial	14%	25%
Mixed Use	9%	15%
Office	19%	30%
Public/Institutional/Transportation/Utility	28%	40%
Public Right-of-Way	24%	30%
Recreation/Open Space	48%	50%
Residential	37%	60%

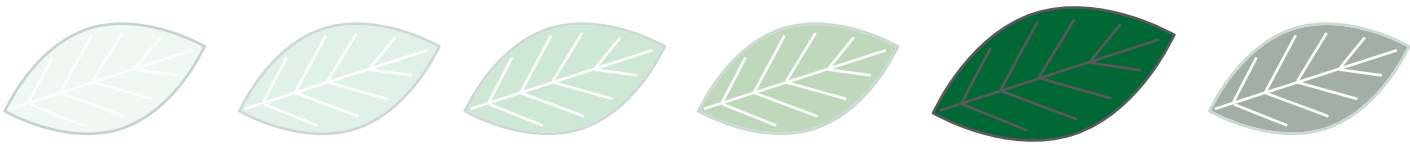
TARGET 2: Increase the average condition rating of city-managed street and park trees from fair to good within 15 years.

TARGET 3: Complete a full routine tree pruning cycle for all city-managed street and park trees by 2023 and maintain a 7-year pruning cycle thereafter.

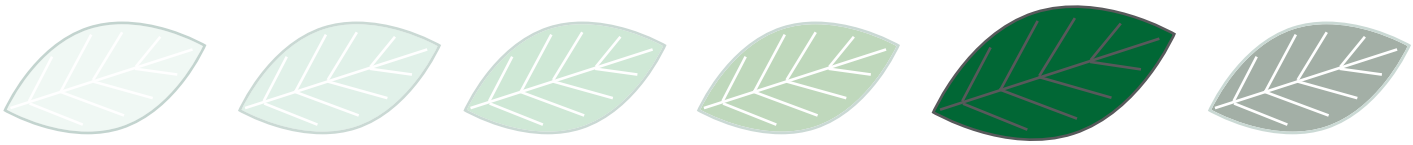
TARGET 4: Improve the composition of the urban and community forest within 30 years by planting a variety of tree species to increase the number of non-Maple (Acer) species to 85% of the street and park tree population.

TARGET 5: Increase and sustain the number of volunteers assisting with tree care and planting activities to 100 people per year by 2020.

TARGET 6: Reduce the number of resident maintenance requests/complaints by 50% by 2023.



5 Recommendations & Action Tasks



CHAPTER 5: RECOMMENDATIONS & ACTION TASKS

The UCFMP has been developed to provide a framework for effectively managing the city's urban and community forest as a sustainable asset consistent with the values and needs of the community. This chapter recommends ways to help to achieve this purpose and to meet the Plan's Vision, Goals and Targets. Each of the 17 UCFMP recommendations below is followed by a full description that includes tasks and ideas to help implement the recommendation.

	RECOMMENDATIONS
1	Implement a proactive tree maintenance program for Ann Arbor's publicly-managed trees, emphasizing routine pruning, removals and care to improve the health and sustainability of the canopy.
2	Develop and strengthen tree planting and young tree maintenance programs for both public and private trees.
3	Develop and implement a comprehensive program to monitor and address threats to the urban and community forest.
4	Increase the preservation and protection of landmark/special trees on public and private lands.
5	Secure adequate and sustainable city-generated funding to support an increased level of service for core urban forestry services and programs.
6	Develop street tree planting master plans that balance tree functions, diversity, design and neighborhood character.
7	Develop and implement a grant, loan and philanthropic funding program to support additional forestry services, special urban forestry initiatives and programs beyond the core level of service to address changing urban forestry needs.
8	Strengthen and refine city ordinances to support the implementation of the Urban and Community Forest Management Plan.
9	Expand on existing practices and programs to update the tree inventory and urban tree canopy analysis.
10	Develop, communicate and follow an urban forest best management practices manual for use by city staff, partners, other entities, and the community.
11	Enhance and develop programs that encourage active participation by volunteers in the development and promotion of a sustainable urban and community forest.
12	Strengthen working relationships and partnerships with businesses, organizations and contractors whose activities impact city trees by instituting regular dialogue and project coordination.
13	Implement an outreach program to inform and educate residents about the urban forest, forestry operations and maintenance and ways to support the implementation of the Urban and Community Forest Management Plan.
14	Obtain the highest and best use of wood from trees removed by the city.
15	Create city staff working groups to coordinate activities and projects that impact the urban and community forest within and amongst city units.
16	Engage the Environmental Commission and Park Advisory Commission in urban and community forest management.
17	Review Urban and Community Forest Management Plan periodically and update as needed.

RELATED TARGETS

(2) Tree Health

(3) Tree Pruning

(6) Resident Requests

CASE STUDIES:

- **Boulder, Colorado**

  The city's street trees in are on a 10-year pruning rotation and the park trees are on a 7-year pruning rotation. Pruning accounts for more than a quarter of total annual forestry expenditures.

- **Fort Wayne, Indiana**

  The city prunes their 52,000 street trees on a 5-7 year pruning cycle. Since they began their pruning cycle, tree mortality has decreased 70%. Individual pruning requests are addressed when the pruning cycle is in the area of the request.

- **Boise, Idaho**

  The City maintains a street tree population of approximately 23,000. The municipality is divided into eight geographic tree management districts that are used to organize and focus pruning efforts. Yearly efforts take place in one specific district; the current tree pruning cycle is about 7-8 years.

RECOMMENDATION # 1

Implement a proactive tree maintenance program for Ann Arbor's publicly-managed trees, emphasizing routine pruning, removals and care to improve the health and sustainability of the canopy.

Description

The City is responsible for managing over 49,000 trees growing along public streets and in mowed areas of parks. These trees are a tremendous asset to the city providing $4.6 million in benefits each year, including improving stormwater and air quality, lowering energy costs, and increasing property values.

Current, 2013-2014, City urban and community forestry activities include:

- **Pruning***:* no routine pruning cycle; pruning only for sight clearance, immediate hazards and storm damage
- **Tree Removal**: removal of hazardous trees and those identified as "priority removals" in the tree inventory
- **Street Tree Planting***:* planting over 700 street trees
- **Stump Removal:** done in coordination with tree planting, as funds allow
- **Tree Field Investigation:** conducted based on resident requests for tree trimming, tree planting or tree removal
- **Hazard Tree Assessment:** conducted to assess a tree's hazard potential and to recommend management activities to mitigate hazard.

The current forestry program is best described as a *reactive* program. Field activities are driven primarily by hazards identified in the tree inventory, and as a result of city staff observations, resident service requests and emergencies. A reactive urban forestry program can lead to inefficient service delivery, low customer satisfaction and effects the overall condition, lifespan, value, and sustainability of the urban forest.

The purpose of this recommendation is to transition to a proactive forestry program that includes routine maintenance to better address current needs (i.e. an increasing backlog of priority removals/pruning), while instituting regular practices (e.g. routine pruning cycle). Routine maintenance programs are more efficient, cost effective, and improve the quality, condition and value of the urban forest (see Chapter 3 "Tree Management" for benefits of routine pruning). Studies have shown that a routine pruning cycle can reduce tree-related service requests and render trees less prone to storm damage. Managing the urban and community forest to withstand storms with minimal damage is important because the frequency and intensity of severe storm events are expected to increase due to climate change.

As with other infrastructure, like roads, bridges, and utilities, Ann Arbor's publicly- managed trees require proactive and routine maintenance to ensure an efficient, safe and sustainable urban and community forest that maximizes benefits to the community. While other public infrastructure depreciates in value, the multiple benefits of properly-maintained trees increase in value over time.

Action Tasks

A. Define geographic management areas for urban forestry activities, considering the following factors in delineating the areas:

   i. Age, condition, number of tree planting sites, and species composition of the urban forest in the proposed management area.

   ii. Maintenance needs of the proposed management area to ensure systematic service delivery.

   iii. Neighborhood character and identity. The management areas should avoid fragmenting or fracturing currently defined neighborhood areas or groups.

B. Use urban forest management areas to develop a 5-7 year pruning cycle.

   i. Utilize the tree inventory and field investigations to identify priority areas to start the pruning cycle.

   ii. Identify areas that should have shorter pruning cycles , such as in high density/ profile areas downtown and neighborhoods with a high density of high-maintenance trees (e.g. Lindens, Sugar maples).

C. Utilize the tree inventory and urban forest management areas to develop a systematic program to remove trees listed as priority removals in the inventory and dead/hazardous publicly maintained trees that are not listed in the tree inventory.

   i. Identify high-traffic and high profile areas where there is a higher priority to remove dead trees.

   ii. Identify areas with the highest concentration of removals.

D. Move towards removing all trees identified as Priority 1 removals each year and remove stumps as they are created.

E. Continue a program of planting trees in locations where there are currently no street trees.

F. Develop a program where new trees are planted immediately following tree removals.

G. Utilize the tree inventory and urban forest management areas to develop a systematic program to trim all trees listed as priority prune in the tree inventory.

Implementation Ideas:

- *Conduct a feasibility study to look at using other maintenance activities such as cabling/bracing trees and the treatment of diseased/insect infested trees. Study should include cost of conducting maintenance activities, benefits the tree provides, benefits of the maintenance activity, criteria for using the activity and on-going maintenance requirements.*

H. Track resident tree maintenance service requests.

I. Provide routine work schedules to the public.

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(4) Tree Diversity

(5)Engage Volunteers

CASE STUDIES:

- **Philadelphia, Pennsylvania**

  Tree canopy cover can count as an impervious area credit towards a non-residential customer's stormwater charge. Credit is also given for tree planting. Property owners request the credits which must be renewed every 4 years.

- **Baltimore County, Maryland**

  "Growing Home Campaign" is an education and incentive program for planting trees on private property. The program provides a $10 discount to residents at participating nurseries towards the purchase of a tree.

- **Los Angeles, California**

  Over the last 20 years, the City's Environmental Affairs Department has partnered with local community-based organizations to plant more than 80,000 trees on public property. Many of the planting locations were chosen to mitigate the urban heat island effect and reduce heat related illnesses and environmental issues as a result.

RECOMMENDATION #2

Develop and strengthen tree planting and young tree maintenance programs for both public and private trees.

Description

The tree canopy targets described in Chapter 4 set an ambitious goal for increasing the tree canopy across the city and optimize the benefits provided by the urban and community forest. While proactive maintenance (Recommendation #1) is vital to improving the health, condition and growth of the urban forest canopy, reaching the tree canopy targets will require both tree planting and young tree maintenance.

While there are currently over 5,600 vacant street tree planting sites along public right-of-ways, the majority of land in the city is privately owned. Working with different types of landowners, from residential to industrial is important to ensure that tree planting is pursued where it is feasible and likely to succeed. Tree planting projects also need to be coupled with appropriate care during tree establishment because a shade tree planted today will take over 20 years to mature and provide the optimum ecological, economic and social benefits to the community.

Action Tasks

A. Identify areas of the city to prioritize for public and private tree planting projects, including areas with sparse tree canopy cover and where canopy improvements can help meet canopy cover targets.

   a. Consider areas with high incidences of heat-related health impacts and aging tree populations.

   b. Encourage the use of large shade trees, where appropriate

B. Develop tree planting incentive programs to encourage tree planting and preservation on private property through partnerships with non-profit, civic, and other organizations.

   Implementation Ideas:

   - *Develop cost share programs with civic organizations that can assist homeowners and businesses purchase, plant, and maintain trees.*

   - *Develop partnerships with nurseries to provide tree purchase and planting incentives in parts of the city most in need of canopy improvements. Utilize financial assistance from city, philanthropic organizations and/or nurseries.*

C. Develop procedures and guidelines for post-planting care (e.g. watering) for public and privately owned trees. These procedures will be included in the best management practice manual (see Recommendation #10)

D. Coordinate city-wide urban forest outreach and educational campaigns to teach community members about tree planting and care and to encourage them to become stewards of the urban and community forest.

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(5) Engage Volunteers

CASE STUDIES:

- **Seattle, Washington**

  The City of Seattle collaborates with Seattle Parks, Earth Corps and volunteers from the Green Seattle Partnership Forest Monitoring Team to monitor the urban forest. Volunteers collect specific data about Seattle's urban forest to monitor health and pest infestations.

RECOMMENDATION #3

Develop and implement a comprehensive program to monitor and address threats to the urban and community forest.

Description

The urban and community forest is a dynamic system where living and non-living factors can have a substantial influence on its condition, quality and health. A number of factors threaten Ann Arbor's urban and community forest, including insects, diseases, climate change, invasive species, wildlife and storms.

The City currently does not have an active program to monitor and address threats to the urban and community forest; however, the recent experience with the emerald ash borer and the loss over 10,000 publicly-managed trees highlights the importance of developing such a program. This recommendation will develop and implement a comprehensive program to monitor the urban and community forest and identify/address potential and future threats.

Action Tasks

A. Develop programs to monitor and respond to threats to the urban and community forest utilizing information from the tree inventory, updated analyses of the urban tree canopy, pest alerts, the Michigan Department of Natural Resources, USDA Forest Service and APHIS, and field assessments.

Implementation Ideas:

- *Utilize free USDA Forest Service tools to help gather and monitor pest damage (e.g. i-Tree PED) and storm damage (e.g. i-Tree Storm)*

B. Develop a program to train volunteers to conduct field assessments/pest monitoring.
   i. Provide adequate staff supervision
   ii. Develop protocols for quality control and assurance

C. Work with universities and other experts to look at data on how climate change may impact and affect the urban forest.
   i. Develop baseline data and metrics for use in measuring climate change impacts to the urban and community forest.

D. Develop a city-wide invasive species management plan.
   i. Conduct city-wide mapping of vegetation and analyses of invasive species and locations of pest free areas.
   ii. Identify invasive pests (ex: plants, insects, diseases) currently impacting the city's urban forest and those that are a serious concern but have not been found in Ann Arbor (e.g. Asian longhorned beetle) and develop strategies to manage them.

Implementation Ideas:

- *Develop education program for private property owners on species diversity and invasive species management.*
- *Partner with local nurseries to offer discounts to residents to use native and non-invasive plant species*

RECOMMENDATION # 4

Increase the preservation and protection of landmark/special trees and native forest fragments on public and private lands.

Description

Ann Arbor's development code regulates landmark trees, woodlands and other natural features located on private property by requiring a property owner to submit a site plan for the removal or disturbance of any natural features on the site. These regulations apply to all private property, except single-family and two-family parcels zoned solely for residential purposes. The Historic District Commission regulates the removal of landmark trees on all private property in a historic district, including residential parcels.

While protective measures exist for landmark trees and woodlands/native forest fragments on some private property, there is a gap in programs, policies and practices that address landmark trees and native forest fragments on publicly owned lands, including the right-of-way and on privately-owned single/two-family residential parcels outside of historic districts. The purpose of this recommendation is to develop policies and best management practices (BMPs) to address landmark/special trees and native forest fragments (see sidebar) on public property; and to develop education and outreach programs focusing on voluntary and incentive programs for their protection on private property.

Action Tasks

A. Develop policies and best management practices (BMPs) for publicly-managed landmark/special trees and native forest fragments. BMPs would be included in a forestry BMP manual (Recommendation 10).

Implementation Idea:

- *Investigate opportunities to fund care/maintenance activities, such as pruning or cabling, for landmark trees on public property.*
- *Policies/BMPs for publicly-managed landmark trees can include: designation criteria; care; public safety; removal process.*

B. Develop educational program and use BMPs (see A) to improve the protection of privately owned landmark/special trees and native forest fragments.

Implementation Idea:

- *Develop education program on the benefits of trees and importance of protecting and maintaining landmark/special trees.*
- *Revive city's voluntary Champion Tree Program, which identified the largest tree of a particular species (Champion) within the city.*
- *Create incentives program to promote the protection of landmark/special trees on private property (e.g. stormwater utility credit for landmark trees).*
- *Develop an outreach program focusing on native forest fragments on private property which would include how to identify, protect, maintain and sustain them into the future.*

RELATED TARGETS:

(1) Tree Canopy Cover by Land Use

(4) Tree Health

Landmark Tree: *Any tree 24-inch DBH (diameter at breast height) or greater, or that is a type and DBH equal to or greater than shown on the landmark tree list in the Land Development Regulations of Chapter 57 of Ann Arbor city code. The definition of landmark tree does not include any tree identified as an invasive species on the city's invasive species list*. (Chapter 57-Ann Arbor City Code)

Special Tree: *A tree that has unique and intrinsic value to the community because of its age, size, historical significance or ecological value.*

Native Forest Fragments: *Visible on early low altitude aerial photgraphs of the city, before the invasion of exotic woody plants. These fragments are typified by their unfarmed soils and by the combination of plants constituting an ecosystem association recognizable as dating back to 1824.* (City of Ann Arbor-Land Development Regulations supplement to Chapter 57)

CASE STUDIES:

- **Portland, Oregon**

  The city manages a *"Heritage Tree"* program where property owners voluntarily designate special trees for heritage status for the life of the tree. Property owners receive incentives and discounts on maintenance of heritage trees.

- **Fair Lawn, New Jersey**

  The city restricts the number of trees that can be removed from a private property each year by requiring a city permit to remove any tree greater than 8 inches.

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(2) Tree Health

(3) Tree Pruning

(4) Tree Diversity

(5) Engage Volunteers

(6) Resident Requests

CASE STUDIES:

- **Austin, Texas**

  TreeFolks, an Austin tree nonprofit organization, sells carbon offsets to raise funds to plant trees, funding approximately 10,000 trees in Central Texas. A local partnership has developed between TreeFolks and the City of Austin.

- **Philadelphia, Pennsylvania**

  The City of Philadelphia created the program 'Erase Your Trace' that allows individuals or businesses to offset their carbon emissions (house, car travel, and air travel) by making a tax deductible financial contribution to help plant trees in Philadelphia through a local park conservancy.

RECOMMENDATION #5

Secure adequate and sustainable city-generated funding to support an increased level of service for core urban forestry services and programs.

Description

In FY 12, Ann Arbor's street tree forestry operations budget moved from being funded through the City's General Fund to being funded through the City's Stormwater Utility. Trees play an important role in the stormwater system by improving the quantity and quality of the stormwater entering the system. It is estimated that each year the city's publicly-managed trees intercept 65 million gallons of stormwater. Trees do this by:

- intercepting rainfall on their leaves and keeping it from reaching the ground and becoming stormwater runoff.
- absorbing stormwater through their roots.
- reducing soil compaction- tree roots can break up hard soil to allow infiltration.
- slowing down and reducing the flow of stormwater through interception, infiltration and absorption.
- improving water quality by intercepting air pollution particulate matter, solvents, fertilizers and oils that would otherwise become part of stormwater runoff and be discharged into nearby streams, rivers and lakes.

Of all the available funding sources, city-generated funds are the most predictable and sustainable source. However, current city-generated funding does not support all of the Forestry work that needs to be completed. A growing backlog of maintenance and management increases every year (see Chapter 3). For example, there are insufficient funds to remove all of the trees that die each year or to cover stump removal following tree removal. Likewise, more trees are added to the priority prune list each year than the City is able to prune. This issue is causing a gradual decline in the quality and condition of the urban and community forest.

The planning process for the Urban and Community Forest Management Plan identified core activities that are crucial for protecting the health and safety of the urban and community forest, reducing long-term maintenance costs, and increasing its benefits. City-generated funds should be directed towards these core activities to ensure they are adequately funded.

Proposed Core Services

a) Field Work- work completed by the city Forestry crews on city trees
   i. Tree Trimming - shift to proactive maintenance
   ii. Tree planting
   iii. Post planting care (new tree care)
   iv. Tree removal
   v. Stump removal
   vi. Storm damage
   vii. Emergency tree work (tree failure)

b) Assessment/Appraisals
   i. Field investigations
   ii. Tree inventory
   iii. Tree appraisals
   iv. Tree assessments
   v. Construction oversight/inspection/preparation
   vi. Tree canopy analysis

c) Administration-planning and management activities
   i. Site plan review
   ii. Ordinance revisions
   iii. Contract management
   iv. Facilitate internal and external working groups
   v. Development and implement best management practices
   vi. Grant/philanthropic support

d) Outreach
   i. Resident notification
   ii. Resident concerns/inquiries response
   iii. Website updates/maintenance
   iv. Volunteer programs
   v. Development of partnerships
   vi. Communication of best management practices
   vii. Development and implementation of Street Tree Master Plans
   viii. Annual forestry reporting
   ix. Resident outreach and education on forestry issues

Action Tasks

A. Determine cost gap between current funding for forestry operations and needed funding for core city-funded activities. This task has been partially completed as part of the development of the UCFMP.

B. Identify additional funding opportunities to expand city-generated funding levels.

Implementation Ideas:

- *Identify special cost sharing, efficiencies, or synergies between city units.*
- *Explore establishing a carbon off-set program where people can off-set their carbon footprint through city tree planting activities.*

C. Ensure adequate staff resources are available to support core urban forestry services (see Appendix B).

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(4) Tree Diversity

(7) Resident Requests

CASE STUDIES*:*

- **Knoxville, Tennessee**

  Developed a Street Tree Master Plan in 2002. They engaged residents in the process through public workshops that discussed issues related to conservation, planting, design and species selection.

- **Santa Monica, California**

  Developed the *Urban Forest Master Plan* in 2011. The plan will guide the perpetuation and management of the urban forest for the next 50 years, acting as a living document. It is the culmination of two years of community input and planning by a task force.

RECOMMENDATION #6

Develop street tree planting master plans that balance tree functions, diversity, design and neighborhood character.

Description

Each year, the City develops a street tree planting plan for the upcoming fiscal year. This plan contains specific geographic areas where street tree planting may occur during the year. Areas in the plan are identified based on resident requests, staff input and tree inventory/urban tree canopy analysis data. Before an area is included in the plan it is evaluated on the amount of impervious area, percent tree canopy, emerald ash borer impacts, the age of the tree canopy and number of potential tree planting locations. Areas for tree planting need to meet at least two of these criteria to be included in the plan. The planting plan allows for a systematic approach to tree planting that saves time and resources.

The main focus of current tree planting activities has been on planting a diversity of tree species across the city. While diversity in planting has been achieved, the selection of tree species planted on particular streets has largely been a subjective, unplanned process with limited resident input. Residents have expressed a desire to have input in the process of selecting tree species that help to define and reinforce the character of their neighborhood.

The purpose of this recommendation is to use a community planning process to determine the desired tree species to be planted in neighborhoods by considering:

- tree species diversity
- use of native species and species that are adaptable to climate change, where appropriate
- right tree, right place practices for locating trees in suitable locations
- the soil in the area, specifically the quantity and quality of the soils in the planting locations
- neighborhood character, street character, aesthetics, and planting design
- community input
- the functions the trees will provide within the neighborhood

The end product of the planning processes will be street tree master plans that identify the mix of trees species that will be planted in neighborhoods taking into consideration the factors listed above.

Action Tasks

A. Use a planning process to develop Street Tree Master Plans for each of the city's Forest Management Areas.

   i. Use newly created management areas and city's yearly planting plan to inventory planting areas noting existing conditions, including ROW width, road width and

speed, existing trees (public and private), utilities, and soil conditions (quantity and quality); and the functions trees can perform (ex: stormwater, windbreak, shading, etc.).

ii. Utilize various public engagement methods to gather resident input on desired tree planting and species selection.

iii. Evaluate information collected in the inventory to identify a list of suitable tree species for the neighborhood that considers street character, overall tree diversity and proper site selection.

iv. Engage residents in selecting tree species based on the list of suitable tree species.

v. Finalize recommendations into the Street Tree Master Plan. Use the master plan as a basis for conducting tree planting projects.

Implementation Idea:

- *Identify areas where infrastructure and tree conflicts may create opportunities for establishing alternative vegetation communities (ex: grassland, shrubland, prairies).*

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(2) Tree Health

(3) Tree Pruning

(4) Tree Diversity

(5) Engage Volunteers

(6) Resident Requests

EXAMPLES OF POTENTIAL GRANT OPPORTUNITIES:

- Global ReLeaf Project through American Forests
- Environmental Solutions for Community Grant Programs through Wells Fargo and the National Fish and Wildlife Foundation
- National Urban and Community Forestry Advisory Council Challenge Cost-Share Grant Program through the U.S. Forest Service
- Siemens Sustainable Community Award through U.S. Chamber of Commerce's Business Civic Leadership Center.

CITY EXAMPLE OF PHILANTHROPIC SUPPORT:

- **Elizabeth R. Dean Trust Fund**

  In 1964, Ms. Elizabeth Dean bequeathed nearly $2 million to the public trees of Ann Arbor. Her Will states "…the interest income thereof be used to repair, maintain, and replace trees on City property, perpetually."

RECOMMENDATION #7

Develop and implement a grant, loan and philanthropic funding program to support additional forestry services, special urban forestry initiatives and programs beyond the core level of service to address changing urban forestry needs.

Description

A funding gap exists between available city-generated Forestry funding and the urban forestry services and programs that residents desire. Grants, loans and philanthropic support can be utilized to supplement city-generated funding by supporting special capital improvements, catalyzing a project or developing a new program. These sources of funding are typically provided to achieve a specific outcome, such as improvements to water quality, tree planting, carbon sequestration or volunteer support, rather than to fund on-going program costs or maintenance.

For the Urban and Community Forest Management Plan, grant and philanthropic funding could be used to support specific tree planting projects, assessment/monitoring studies, or development of an outreach program and materials, in addition to other possibilities.

These programs take time to develop, but have the potential to fund activities and plan recommendations that may otherwise be difficult to fund through city-generated resources alone.

Action Tasks

A. Ensure that adequate city staff resources are available to pursue grant, loan and philanthropic opportunities and to oversee program management.

B. Develop a system to track grant funding opportunities and cycles, allowing for quicker turnaround in pursuing grants when opportunities arise.

C. Pursue partnerships with public agencies, public institutions and non-profit organizations to help with grant-writing and provision of needed matching funds.

D. Determine philanthropic resources that currently exist within the city and determine whether they can be expanded to support the urban forest or if new philanthropic resources might be needed.

E. If appropriate, partner with an organization (ex: Ann Arbor Community Foundation) to assist in the oversight and management of an urban forest philanthropy program, including the coordination of needed outreach fundraising efforts.

F. Develop policy for long-term philanthropic/donor involvement.

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(2) Tree Health

(3) Tree Pruning

(4) Tree Diversity

(6) Resident Requests

CASE STUDIES:

- **Novi, Michigan**

  The City of Novi adopted a woodland protection ordinance that restricts the clearing of wooded areas and outlines mitigation requirements for all properties in the city.

- **Toledo, Ohio**

  The City of Toledo's tree preservation ordinance requires that trees in excess of 12" be protected, if practical, during development. Construction ordinance details requirements for tree protection and activities prohibited around trees during construction.

- **Manhattan Beach, California**

  All front yard trees and street trees greater than 12" DBH are protected in Manhattan Beach (with the exception of invasive species).

- **Denver, Colorado**

  Tree care companies that operate in the City of Denver on public and private property

RECOMMENDATION #8

Strengthen and refine city ordinances to support the implementation of the Urban and Community Forest Management Plan.

Description

City of Ann Arbor ordinances provide enforceable regulations over how property can be utilized, developed, and managed across the city. Existing City ordinances contain a number of regulations pertinent to the urban and community forest, including:

- **Chapter 40: Trees and Other Vegetation** – provides tree maintenance guidelines for public safety, and visual clearance requirements.
- **Chapter 57: Subdivision and Land Use Controls** – addresses development regulations, site plan approval, and outlines protections for landmark trees, woodlands, and other natural features related to site development.
- **Chapter 62: Landscape and Screening Ordinance** – addresses landscape, screening and buffer requirements for commercial development.

Ordinances provide an important backbone for protecting and managing trees on private property. Refinements to, and consolidation of these core ordinances can help strengthen their presence and effectiveness. Development of new ordinances can assist in supporting the goals and recommendations of the UCFMP.

Action Tasks

A. Revise existing ordinances, where appropriate, to better support the goals and recommendations of the UCFMP. Topics that may be considered include, but are not limited to, the following:
   i. Voluntary and incentivized programs to designate and protect special/landmark trees and native forest fragments on private property
   ii. Expand tree planting requirements, requiring better growing conditions, long-term tree protections, and tree diversity requirements for construction projects.
   iii. Woodland protection for areas with high quality natural features.
   iv. Require site planned projects to plant street trees in the street right-of-way frontage, if none exist.
   v. Conflicts that arise between solar/wind/alternative energy and trees

B. Review and consider revising/consolidating existing urban forest related ordinances into a single urban forest ordinance.

C. Initiate a planning process to investigate the development of additional ordinances to enhance Ann Arbor's tree canopy.

Implementation Idea:

- *Develop a canopy preservation ordinance that protects existing trees and woodlands and encourages replacement of damaged or removed trees to provide a continuation of canopy cover in the community.*

RECOMMENDATION #9

Expand on existing practices and programs to update the tree inventory and urban tree canopy analysis.

Description

The City maintains a comprehensive inventory of city street trees and trees in mowed areas of city parks, documenting the species, condition, and maintenance needs of each tree. The tree inventory is currently updated for individual trees when management activities (e.g. removals, pruning, planting) are conducted by city staff or contractors.

The attributes currently updated in the inventory provide important information on work history for city trees but they do not provide necessary and regular updates on tree size, condition or maintenance needs. Conducting regular, periodic updates of all inventoried city trees to measure the size (diameter and height), and assess the condition and future maintenance needs will assist in more efficiently managing and monitoring the overall health of the urban forest.

Urban Tree Canopy Assessment
While the tree inventory provides information on an individual tree basis, an urban tree canopy analysis (UTC) provides data on the tree canopy as whole. A UTC provides valuable information about changes to the urban forest ecosystem that may not be visible from the ground. For example, the analysis can identify areas of canopy loss indicating an insect outbreak, or it may show canopy increases due to improvements stemming from tree maintenance programs.

Action Tasks

A. Expand the tree inventory update program to regularly update the size, condition and maintenance needs of individual trees.

   i. Utilize tree inventory, service requests and field investigations to identify areas of the city that require a 3-year inventory update cycle (e.g. downtown, areas with declining tree populations). Use a 5-year inventory update cycle for all other areas.

Implementation Ideas:

- *Develop a yearly "windshield survey" program, where city staff drive each city street visually assessing street trees to detect problems that need immediate attention in the coming year.*

B. Conduct a follow-up urban tree canopy (UTC) analysis every 5-10 years to monitor changes in the city's tree canopy.

Implementation Ideas:

- *At 5 years, utilize the free USDA Forest Service i-Tree Canopy program to perform a basic UTC analysis.*
- *At 10 years, hire a consultant to conduct a UTC analysis with finer resolution satellite imagery to compare with the existing high resolution 2010 UTC results.*

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(2) Tree Health

CASE STUDIES:

- **Lexington, Kentucky**

  Goals in Lexington's *2010-2014 Community Forest Management Plan* include conducting an urban tree canopy analysis and re-inventorying street and park trees every five years.

- **New Haven, Connecticut**

  Through the Community Greenspace program, volunteers monitor the urban forest by collecting information including tree size, condition and species composition.

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(2) Tree Health

(3) Tree Pruning

(7) Resident Requests

CASE STUDIES

- **Manhattan Beach, CA**
  Tree protection requirements must be posted on site of a construction project.

- **Tacoma, Washington**

  Created a technical urban forest manual, focused on landscaping as part of development. This highlights general tree landscaping standards, as well as tree protection requirements during construction.

- **Riverside, California**

  The city maintains an urban forestry policy manual providing guidelines for tree care, pruning, preservation, removal, and tree plantings. Tree/utility conflict guidelines are also provided to offer best practices.

- **Charlottesville, Virginia**

  The city developed a Best Management Practice manual for homeowners and developers focused on tree preservation, transplanting and removal.

RECOMMENDATION #10

Develop, communicate and follow an urban forest best management practices manual for use by city staff, partners, other entities, and the community.

Description

Urban forestry best management practices (BMPs), for the purposes of this plan, refer to methods, techniques, operations and technologies that have been found to be the most effective and practical to manage and maintain a sustainable urban and community forest and the meet the goals of the UCFMP. A consolidated set of BMPs will better inform city staff, outside entities, and the community on decisions related to urban forestry policies, practices and operations.

The purposes of this recommendation are to identify and develop BMPs that address the management of the urban and community forest and to communicate and institutionalize these BMPs by compiling them into a manual. The BMPs will be designed to improve Ann Arbor's trees by providing guidelines and standards to be used when planting, maintaining, working around and planning for them.

Action Tasks

A. Identify urban forest activities that need best management practices (BMPs), including, but not limited to, the following:

   i. Species selection and tree diversity
   ii. Site selection and planting guidelines
   iii. Resident notification of upcoming activities
   iv. Resident outreach and engagement regarding forestry activities
   v. Post-planting care procedures and requirements
   vi. Improving soil quality and increasing soil quantity
   vii. Tree planting pit design and use of structural soil
   viii. Pruning and maintenance practices
   ix. Tree removal decision processes
   x. Hazard tree identification-- assessment and investigation standards
   xi. Tree and native forest fragment preservation
   xii. Stormwater management
   xiii. Publicly-managed landmark/special trees (criteria for designation, maintenance and care, public safety concerns, removal process).
   xiv. Inventory update procedures and standards
   xv. Tree protection and construction impact practices
   xvi. Coordination practices between city units
   xvii. Coordination between external entities and organizations
   xviii. Construction activities: tree root zone protection and enhancement
   xix. Sidewalk and root conflicts

Implementation Ideas:

- *Develop a comprehensive program for all urban trees to assess soil compaction and soil volume. Enhance where deficiencies are present using structural soils, soil amendments and proper planting methods.*
- *Include tree canopy cover of the area when assessing a tree for removal. If canopy cover is low, effort should be made to look into ways to preserve a non-hazardous tree, if prudent and feasible.*
- *Quantify the value and benefits of a tree versus the risk it poses and cost of maintenance when deciding on whether or not to remove a tree.*
- *Put up "permanent" chain link fencing around trees during duration of construction projects with a permit notice attached to the fencing that details who and where to call to report a violation.*
- *Require tree protection deposits from developers and hold for 3 years after construction is complete. It may take up to 3-5 years for construction damage to become evident in a tree.*

B. Review published research to identify BMPs that support ecological functions of the urban and forest, and incorporate when relevant.

Implementation Ideas:

- *Develop guidelines for establishing a layered understory below tree canopies on public and private lands.*
- *Develop guidelines for species selection that provide critical habitat functions for native fauna, particularly for rare, threatened or endangered species. Consider impact wildlife has on tree regeneration (ex: white tailed deer).*
- *Identify and promote urban forest management activities that can have a positive impact on stormwater and air quality management.*

C. Interview staff to identify and document current practices.

D. Review research and publications on generally accepted industry and community BMPs related to urban forestry management activities.

E. Refine and expand existing BMP documents and establish new practices where none currently exist.

F. Compile BMPs into a single source manual for all forestry related operations.

G. Align BMPs with ordinance requirements.

H. Educate city staff across city units on BMPs and forestry policies.

I. Develop mechanisms to communicate BMPs to outside contractors, other entities that are working in the City of Ann Arbor (on both public and private projects) and the community as a whole.

J. Develop and implement monitoring program to ensure that BMPs are followed by staff and contractors and that an enforcement system is in place to ensure compliance.

Implementation Ideas:

Explore partnerships with research institutions to test or develop beneficial management practices

RELATED TARGETS

(2) Tree Health

(3) Tree Pruning

(5) Engage Volunteers

- *The City's Natural Area Preservation program sponsors stewardship work days that include native plantings and hand-pulling invasive species.*

- *Adopt-a-Park program works within Ann Arbor's 162 parks. Park adopters volunteer for tree planting, maintaining landscape beds and other activities to beautify and improve the park.*

CASE STUDIES:

- **Frankfort, Kentucky**

  Volunteers play a role in accomplishing the city's urban forestry goals. Activities include planting, pruning and mulching, tree inventory, youth work projects, control of invasive plants, and computer data entry.

- **Vancouver, Washington**

  The City's volunteers participate in tree activities including Saturday volunteer planting events, neighborhood tree planting projects, maintaining and watering shrubs, invasive species removal, outreach activities, and event assistance.

RECOMMENDATION #11

Enhance and develop programs that encourage active participation by volunteers in the development and promotion of a sustainable urban and community forest.

Description

An important part in developing a sustainable urban and community forest is engaging the community in its management. Since 2009, the City has been offering volunteer programs to do just that. These programs, detailed below, provide volunteers the opportunity to learn a tree management skill (e.g. tree planting, tree pruning) that they can use to help improve the urban and community forest on both public and private property. The programs are creating tree stewards within the community who can serve as advocates for Ann Arbor's trees and can help to build awareness about them to their family, friends and neighbors.

- **Neighborhood Volunteer Street Tree Planting Program**
  - Over 200 trees have been planted by neighborhood volunteers
  - Since the pilot program in the Virginia Park neighborhood in 2009, the City has continued to coordinate neighborhood volunteer street tree plantings.
  - Rotary Club of Ann Arbor has provided financial and volunteer support for tree plantings.
- **Citizen Pruner Program**
  - Educates and trains residents on how to prune and care for young street trees.
  - Trees pruned while they are young develop proper form and structure and require less pruning as they mature. It also reduces the likelihood that they will be damaged during storms.
  - Volunteers have pruned over 500 young trees since the program began.

The purpose of this recommendation is to expand and enhance the City's volunteer programs, as well as encourage volunteer efforts by non-profit organizations, businesses and environmental groups that can help increase Ann Arbor's canopy through planting and maintenance efforts.

Action Tasks

A. Identify activities appropriate for volunteers, qualifications needed to perform activities and the amount of supervision and resources required of city staff.

B. Evaluate, improve and expand upon current forestry volunteer programs

C. Further develop volunteer programs that utilize groups from local corporations/businesses.

D. Develop procedures to handle requests for private sponsorship of city- owned open space, park lands and trees.

E. Integrate forestry into city-wide volunteer programs (e.g. Adopt-a-Park, Natural Area Preservation, Give 365 programs).

Implementation Idea:

- *Develop a volunteer program to water trees during prolonged dry periods and drought.*

RECOMMENDATION #12

Strengthen working relationships and partnerships with businesses, organizations and contractors whose activities impact city trees by instituting regular dialogue and project coordination.

Description

The city's urban and community forest is not only impacted by the activities of city crews, but also by other entities, including the University of Michigan, DTE Energy, Ann Arbor Downtown Development Authority (DDA) and contractors. Some of their activities can have a positive impact on the urban and community forest, while others can have a negative impact, especially if there is no coordination among the parties. If done without coordination and oversight, certain activities, such as cutting tree roots during excavation, trimming for utility line clearance and tree removal for development, can negatively affect the urban forest.

The purpose of this recommendation is to provide effective methods of communication with outside entities that will allow for improved coordination and management of the urban and community forest. The creation of working relationships with key personnel within businesses, organizations and contractors whose activities impact city trees will improve relationships, provide opportunities for collaboration and reduce the negative impacts that their work can have on the urban forest.

Action Tasks

A. Identify businesses, organizations and contractors whose activities impact city trees.

B. Identify contacts within these groups to develop working relationships.

C. Educate businesses, organizations and contractors on City BMPs and tree related policies.

D. Investigate opportunities for partnerships and collaboration.

E. Ensure staff communication with outside organizations regarding projects that affect or may affect trees.

F. Develop a policy to ensure that all tree issues have been addressed by city staff before any construction or right-of-way permits are issued.

G. Establish a process for communication between residents and city staff about forestry activities conducted by businesses, organizations or contractors in their neighborhood.

Implementation Idea:

- *Organizations to strengthen and develop working relationships include:*
  - *The University of Michigan*
  - *DTE Energy*
  - *Michigan Department of Transportation*
  - *Ann Arbor Downtown Development Authority*
  - *Ann Arbor Public Schools*
  - *Sidewalk and roadway contractors*
  - *Utility contractors*

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(2) Tree Health

(3) Tree Pruning

(6) Sustainable Funding

CITY OF ANN ARBOR PARTNERSHIP EXAMPLES:

- In 2011, the City partnered with the Michigan Department of Transportation (MDOT) who removed dead trees along Jackson Ave., Huron St. and Washtenaw Ave (state trunklines). Trees were then replanted along these roads in partnership with MDOT, the Michigan Department of Natural Resources and the Greening of Detroit with funding from the USDA Forest Service Urban & Community Forestry Program.
- The City collaborated with DTE Energy during their 2011 utility line clearance tree trimming program. Forestry marked the trunks of dead and dying trees under DTE utility lines that could be removed. When cost effective for DTE, their crews removed these trees rather than pruning them. This collaboration saved both the city and DTE Energy time and resources.

RELATED TARGETS

(5) Engage volunteers

(6) Resident Requests

RECOMMENDATION #13

Implement an outreach program to inform and educate residents about the urban forest, forestry operations and maintenance, and ways to support the implementation of the Urban and Community Forest Management Plan.

Description

To accomplish the recommendations in the Urban and Community Forest Management Plan, a sustained community outreach effort is needed. This recommendation focuses on educating, informing and engaging the community in the stewardship of the urban and community forest.

Outreach efforts will focus on a number of important tasks, including:

- Development of a comprehensive program to notify residents of upcoming forestry activities in their neighborhood. Program elements include identifying ways the City will communicate with residents and ways residents can communicate and engage with the City regarding forestry activities.
- Creation and distribution of urban forest related educational materials.
- City-wide outreach to raise awareness of the urban forest and its benefits.
- Volunteer recruitment, organization of volunteer activities, and providing information about ways residents can help the urban forest (ex: watering and mulching newly planted street trees).
- Establish and strengthen partnerships between the City and community members, businesses, and institutions.

These outreach tasks are important for building community awareness and support for the urban and community forest and for promoting action. To be effective, the outreach program will be responsive, emphasize good public relations and identify unique ways to reach and target different stakeholder groups, including the use of traditional and new media tools.

Action Tasks

A. Develop best management practices related to the communication of forestry policies, practices, and future activities (see Recommendation 10).

B. Develop and implement a strategy for regular dialogue with the community about the urban forest, using a mix of traditional and social media tools.

   i. Survey residents to identify the best communication methods and utilize multiple methods.

C. Review current urban forestry outreach and educational materials. Revise and develop materials to cover relevant topics. Topics may include:

   - Benefits and costs of managing the urban and community forest
   - City forestry practices and operations

CASE STUDIES:

- **Meridian, Mississippi**

  Conducted tree care and maintenance workshops, funded by the Mississippi Forestry Commission, for homeowners and residents in the City.

- **Seattle, Washington**

  The City of Seattle's Tree Stewards program offers classes in tree biology and landscape maintenance, as well as tree inventory opportunities, and neighborhood tree planting projects.

- Resources and guidelines for private property owners on plant selection, planting techniques, and maintenance best practices, including right tree, right place guidelines
- Invasive species management
- Threats to the urban forest, including climate change, pests and invasive species
- Approaches for resolving issues that arise between property owners

D. Identify and contact organizations and groups (public, private, and non-profit) that can assist with implementing the UCFMP through outreach and educational programming.

E. Develop an Urban and Community Forest Annual Report that provides quantitative and qualitative information on forestry activities, successes, threats and on-going needs during the fiscal year.

 ***Implementation Ideas:***

- *Develop relationships with homeowners associations and neighborhoods to help publicize upcoming neighborhood tree work.*
- *Provide a contact number and person "on-call" to hear complaints, address issues and prevent violations of City policies and BMPs.*
- *Create a standard presentation about the City forestry program that can be presented at homeowner and neighborhood association meetings.*
- *Post public announcements/outreach on interior AATA bus placards.*
- *Engage schools in bringing outreach activities and environmental education programs covering urban forest issues to classrooms, teaching students about the value and benefits of the urban forest.*
- *Partner with schools and faith-based organizations with large parcels of land to implement urban forest projects.*
- *Initiate a call for action by implementing a challenge program, encouraging residents, businesses, and institutions to participate in improving the urban forest.*
- *Work with local green industries (nurseries, suppliers, landscapers,) to support the UCFMP.*
- *Make approved street tree planting list more readily available (ex: City utility bills, local/on-line publications)*

RELATED TARGETS:

(5) Engage Volunteers

CASE STUDIES:

- **Urbanwood Project, Southeast, MI**

  A partnership of sawyers, sawmills, tree services and local wood workers in Southeast Michigan that supplies or utilizes wood from urban trees that have been cut down. Project members provide high-quality sustainable wood products in Southeast Michigan.

- **City of Monroe, MI**

  The City of Monroe has developed a partnership with a local wood sawyer to mill wood from city trees. The city collects logs from removed trees that are suitable for lumber at their public works yard. The sawyer comes to the city periodically to mill the logs. The city receives any milled wood that it needs and the sawyer takes whatever remains. No money exchanges hands.

- **Trees for Habitat, Flint, MI**

  A partnership was developed with the Genesee Conservation District and Habitat for Humanity to utilize 254 street trees removed from the City of Flint for Habitat for Humanity building projects. Trees were milled into trim, railings, cabinets, flooring and sheds for Habitat buildings.

RECOMMENDATION #14

Obtain the highest and best use of wood from trees removed by the City.

Description

In the development of a sustainable urban and community forest it is important to consider all aspects of a tree's life cycle from tree planting and maintenance to proper use and/or disposal of the wood generated when it is removed. Each year the City generates over 200 tons of wood waste from tree removal and tree trimming activities, including tree branches and tree trunks. This recommendation helps to address the end of a tree's living life cycle and identify strategies to extend its usefulness after it is removed from the landscape.

Currently, all City-generated wood waste is chipped. While most of the wood chips are used as mulch for tree planting activities and park paths, logs too large for the chipper are disposed of, for a fee, at the City's compost facility.

The purpose of this recommendation is to investigate alternative strategies for large logs that are generated during tree removal. The strategies would identify ways for the City to obtain the highest and best use of the wood from removed trees. Alternative uses can range from mulch and compost to pictures frames, furniture, flooring or other wood products created by local wood workers. In order to be sustainable, the strategies must not cost the City any more than it currently pays for the disposal of its wood waste.

Strategies would be focused on city trees that are slated for removal because of poor/ hazardous condition. The harvesting of healthy, structurally sound trees for the creation of wood products will not be considered.

Action Tasks

A. From the inventory of trees that are slated for removal, establish criteria for determining which trees have a potential higher end-of-life use than mulch/compost.

B. Develop partnerships with the generators of wood waste (City, University of Michigan, tree services) and local wood users/ workers and interested residents.

   i. Develop focus groups.

   ii. Identify wood utilization issues & opportunities from focus groups

   iii. Develop potential cost-neutral strategies to obtain the highest and best use of wood removed from city trees.

C. Based on "Action Tasks" A and B, investigate feasibility of implementing potential strategies.

D. Develop programs to pilot select strategies.

Implementation Ideas:

- *Partner with woodworkers to make products from city trees (ex: pens, picture frames) to be sold as a fundraiser for the Forestry program.*
- *Develop a woodworking studio at an unused city building and hold woodworking and art classes.*

RECOMMENDATION #15

Create city staff working groups to coordinate activities and projects that impact the urban and community forest within and among city units.

Description

Issues involving city trees often span several City units, including Project Management, Field Operations, Systems Planning, Planning & Development and Emergency Management. With multiple Units simultaneously working on projects that may impact trees, each unit should understand and follow current Forestry best management practices (BMPs) and policies in order to eliminate potential risks to the urban and community forest and to provide opportunities for collaboration between city units.

The purpose of this recommendation is to allow for consistent and thoughtful management of the urban and community forest. Coordinating projects and communicating BMPs within and amongst city units will resolve conflicting policies and practices, as well as, present opportunities for coordination.

Staff working groups will allow for more cohesive management of the urban and community forest. Collaborative working groups will also ensure that trees are adequately planned for and protected and that opportunities to enhance the health of the urban forest are considered across city units.

Action Tasks

A. Identify a point of contact within each city unit that has activities that impact trees.

B. Utilize Capital Improvements Plan process to identify projects that will impact city trees.

C. Develop working groups around specific projects.

D. Work with Field Operations to identify daily operation activities that impact city trees and how they can reduce their impacts on the urban forest.

E. Educate city staff on forestry policies and BMPs (Recommendation 10) that need to be communicated and followed internally and by contractors and other entities.

Implementation Idea:

- *Utilize city project inspectors already on a construction site to monitor activities that may harm existing trees.*
- *Work with Emergency Management to fully integrate tree operations into emergency plans.*

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(2) Tree Health

(3) Tree Pruning

CASE STUDIES:

San Francisco, California

- Created an urban forestry council composed of city staff or relevant organizations that advise city departments. They are tasked with developing a comprehensive forestry plan, educating the public, developing tree-care standards, identifying needs and opportunities, facilitating coordination among agencies, and reporting on the state of the urban forest.

Seattle, Washington

- Developed the Seattle Urban Forest Coalition, an interdepartmental partnership whose mission is to coordinate the overlapping urban forestry functions of the city departments and related programs/activities. The working group is composed exclusively of city staff members and has produced the Urban Forest Management Plan for Seattle.

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(2) Tree Health

(3) Tree Pruning

(4) Tree Diversity

(5) Engage Volunteers

CASE STUDIES:

- **Vancouver, Washington**

  The City of Vancouver has a seven member, city council appointed Urban Forestry Commission. The commission is responsible for coordinating the city's heritage tree program, planning events (ex: Arbor Day celebration and the Old Apple Tree Festival), informing planning commissioners on urban forestry issues and conducting outreach and education.

- **Portland, Oregon**

  The City of Portland has a ten member, volunteer urban forestry commission appointed by the mayor in consultation with the parks commissioner. The commission is an advisory group to the city on tree related issues.

RECOMMENDATION #16

Engage the Environmental Commission and Park Advisory Commission in urban and community forestry management.

Description

The City's Environmental Commission develops and advises City Council on comprehensive, integrated environmental goals and policies to protect and enhance Ann Arbor's air, water, land and public health. The Parks Advisory Commission's (PAC) recommends policies and advises on park development.

Within the Environmental Commission are resource committees (e.g. Water Committee) which address specific issues and concerns related to that resource that can affect both public and private property. A void in the Environmental Commission resource committees is one that focuses on urban and community forestry issues.

An Environmental Commission Urban and Community Forest Committee can:

- advise the Environmental Commission and Park Advisory Commission on urban and community forest issues related to both public and private property.
- assist with the implementation of recommendations from the UCFMP.
- ensure that the implementation of other city environmental goals and policies do not adversely impact the urban and community forest.

The purpose of this recommendation is to engage the Environmental Commission and Park Advisory Commission through the creation of an Urban and Community Forest Committee.

Action Tasks

A. Identify steps with staff and the Chair of the Environmental Commission to create an Urban and Community Forest Committee.

B. Develop structure of the Committee, including number of members and representation. Committee should include both members who have technical knowledge of trees/ arboriculture and those that have other skills and knowledge.

   i. The Urban and Community Forest Committee should include two members from the Park Advisory Commission.

C. Identify/advertise for candidates to be considered for the Urban and Community Forest Committee. Include residents who have been involved in City urban forest activities on candidate list.

RECOMMENDATION # 17

Review Urban and Community Forest Management Plan periodically and update as needed.

Description

The urban and community forest is a dynamic system and the UCFMP must be flexible and adaptive to these changes. Periodic review of the UCFMP will provide an opportunity to ensure that the plan goals, recommendations and action tasks are responsive to the changing urban and community forest.

Action Tasks

A. Monitor plan action tasks and report out annually on progress of plan.

B. Identify process for review.

   i. Timetable for review and refinement

   ii. Process for approval of changes/refinement

RELATED TARGETS

(1) Tree Canopy Cover by Land Use

(2) Tree Health

(3) Tree Pruning

(4) Tree Diversity

(5) Engage Volunteers

(6) Resident Request

CASE STUDIES:

- **Santa Monica, California**

  The City of Santa Monica's 2011 Urban Forest Master Plan will be periodically updated to ensure the plan is being implemented and to react to changes in the urban forest.

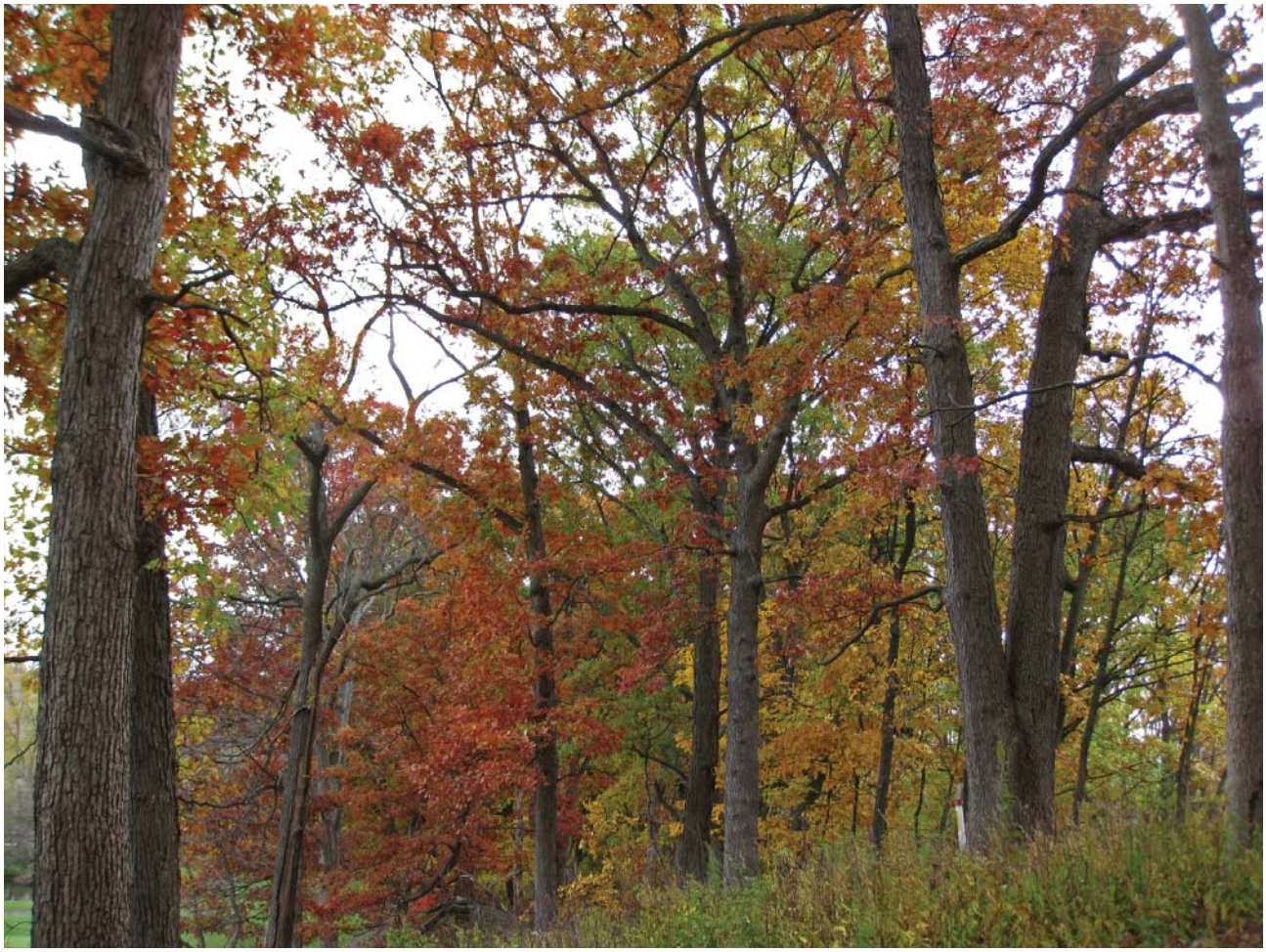
6 Implementation & Conclusion

CHAPTER 6: IMPLEMENTATION & CONCLUSION

IMPLEMENTATION

The UCFMP recommendations outlined in Chapter 5 provide a comprehensive framework for the development of a sustainable urban and community forest. Its effective implementation will require time and additional resources. The community prioritized the implementation of the recommendations and their rankings (recommendation order) will help to determine where staff and resources should be focused as the UCFMP is implemented.

The resources needed to implement each of the recommendations has been provided in Table 15. Additional information on implementation options for Recommendation #1 (*Implement a proactive tree maintenance program for Ann Arbor's publicly managed trees*) have been provided in Appendix D, in response to the desires of the community for this recommendation to be implemented first.



REC. #	RECOMMENDATION	CITY STAFF & OTHER RESOURCES NEEDED	ADDITIONAL FUNDING RESOURCES NEEDED
1	Implement a proactive tree maintenance program for Ann Arbor's publicly managed trees emphasizing routine pruning, removals and care to improve the health and sustainability of the canopy.	**City Staff Resources** • Urban Forestry & Natural Resources Planning Coordinator (UFNRP) **(Lead)** • Field Operations (Forestry) Supervisor **(Lead)** • Field Operations Manager • Public Services Area Administrator • Field Operations Forestry staff • Finance **Other Resources:** • City Administrator • City Council	**Based on 7 Year Pruning Cycle** Estimate: $350,000 per year(~6200 trees pruned per year) Total: $2,500,000 over 7 years *Additional pruning cycle and backlog elimination scenarios in Appendix D*
2	Develop and strengthen tree planting and young tree maintenance programs for both public and private trees.	**City Staff Resources:** • UFNRP coordinator **(Lead)** • Forestry Supervisor and staff • NAP staff • Planning • Parks and Recreation **Other Resources:** • Residents/Homeowners • Volunteers (e.g. Citizen Pruners, Rotary Club of Ann Arbor) • Private Developers • Full time staff/intern/temporary employee to develop & implement programs	$30,000 per year for staff/intern/ temporary employee to develop and implement tree planting and young tree maintenance programs. Position could also do work associated with Recommendation #11 and be shared within the organization.
3	Develop and implement a comprehensive program to monitor and address threats to the urban forest.	**City Staff Resources:** • UFNRP coordinator **(Lead)** • Forestry Supervisor and staff • Natural Area Preservation Program (NAP) staff **Other Resources:** • MDNR and MDARD • USDA Forest Service and APHIS • i-Tree Tools • Volunteers (e.g., Citizen Pruners)	Program development could be implemented with existing city resources $5,000 per year to implement monitoring program Additional funding resources would be needed to address a new threat to Ann Arbor's urban and community forest.
4	Increase the preservation and protection of landmark/special trees and native forest fragments on public and private lands.	**City Staff Resources** • UFNRP coordinator- **Lead** • Forestry Supervisor and Staff- • NAP staff • Planning - **Lead** • Parks and Recreation **Other Resources:** • Residents/homeowners • Volunteers (e.g. Citizen Pruner) • Non-profit environmental groups • Private developers	Some elements of the recommendation could be implemented with existing staff. Private land outreach may require additional staff if not done by an outside organization. Cost would be determined based on type of program.

Table 15: Resources needed to implement Recommendations **(continued on next page)**

REC. #	RECOMMENDATION	CITY STAFF & OTHER RESOURCES NEEDED	ADDITIONAL FUNDING RESOURCES NEEDED
5	Secure adequate and sustainable city-generated funding to support an increased level of service for core urban forestry operations and programs.	**City Staff Resources** • UFNRP Coordinator • Field Operations Forestry Supervisor and staff • Public Services Area Administrator • Systems Planning Manager • Water Quality Manager • City Administrator • Finance • Environmental Coordinator **Other Resources** • City Administrator • City Council	See Forestry Staffing Recommendations in Appendix B and Forestry operation level of service scenarios in Appendix D
6	Develop street tree planting master plans that balance tree functions, diversity, design and neighborhood character.	**City Staff Resources:** • UFNRP coordinator **(Lead)** • Forestry Supervisor & staff **Other *Potential* Resources** • Consultant to develop master planning process and lead a pilot to develop a neighborhood street tree master plan.	$25,000 to hire consultant to develop process and lead pilot program. Staff could implement with existing resources after process was developed.
7	Develop and implement a grant, loan and philanthropic funding program to support additional forestry services, special urban forestry initiatives and programs beyond the core level of service.	**City Staff Resources** • UFNRP Coordinator **(Lead)** • Public Services Area Administrator • Systems Planning Manager • Finance • Environmental Coordinator	Could be implemented with existing city resources
8	Strengthen and refine city ordinances to support the implementation of the Urban and Community Forest Management Plan.	**City Staff Resources** • UFNRP coordinator **(Lead)** • Forestry Supervisor and Staff **(Lead)** • NAP staff • Planning **(Lead)** • Parks and Recreation **Other Resources:** • Residents/homeowners • Volunteers (e.g. Citizen Pruners, Rotary Club of Ann Arbor) • Private developers	Could be implemented with existing city resources.

Table 15: Resources needed to implement Recommendation (continued on next page)

REC. #	RECOMMENDATION	CITY STAFF & OTHER RESOURCES NEEDED	ADDITIONAL FUNDING RESOURCES NEEDED
9	Expand on existing practices and programs to update the tree inventory and urban tree canopy (UTC) analysis.	**City Staff Resources** • UFNRP coordinator **(Lead)** • GIS Staff • Forestry Supervisor **(Lead)** • Forestry staff **Other Resources:** • Contractor to obtain aerial imagery and perform UTC analysis • Intern to conduct tree inventory data collection • Volunteers to assist in tree inventory data collection	Urban Tree Canopy Analysis: $35,000 every 10 years (may be opportunities for partial or full grant funding) $15,000 -intern to conduct tree inventory data collection and coordinate volunteers
10	Develop, communicate and follow an urban forest best management practices manual for use by city staff, partners, other entities, and the community.	**City Staff Resources** • UFNRP coordinator **(Lead)** • Field Operations Supervisors- Forestry, Streets, Parks, Utilities • Field Operations staff • Project Management Engineers and Inspectors • Soil Erosion Sedimentation Control Inspector • NAP • Planning & Development Services • Parks and Recreation **Other Resources:** • Intern to assist in development & communication of best management practices	$8,000 for summer intern to assist in development and communication of best management practices.
11	Enhance and develop programs that encourage active participation by volunteers in the development and promotion of a sustainable urban and community forest.	**City Staff Resources** • UFNRP Coordinator (**Lead)** • NAP **(Lead)** • Field Operations Forestry Supervisor and staff • Parks and Recreation - Give 365 Program	$30,000 per year for staff/intern/ temporary employee to develop and implement tree planting and young tree maintenance programs. Position could also do work associated with Recommendation #4.
12	Strengthen working relationships and partnerships with businesses, organizations and contractors whose activities impact city trees by instituting regular dialogue and project coordination.	**City Staff Resources** • UFNRP coordinator **(Initial Lead)** • Field Operations Supervisors- Forestry, Streets, Parks, Utilities • Field Operations Staff • Project Management Engineers and Inspectors • Soil Erosion Sedimentation Control Inspector • NAP • Planning & Development Services • Parks and Recreation • Other City Units, as needed	Could be implemented with existing resources

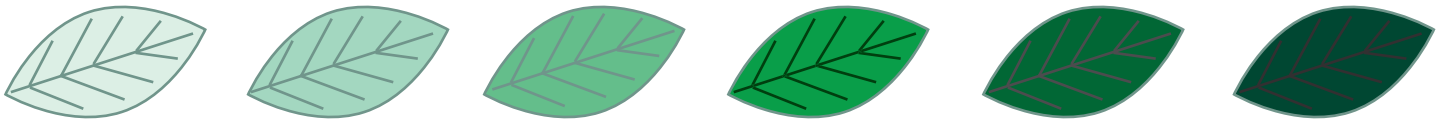
Table 15: Resources needed to implement Recommendations (continued on next page)

REC #	RECOMMENDATION	CITY STAFF & OTHER RESOURCES NEEDED	ADDITIONAL FUNDING RESOURCES NEEDED
13	Implement an outreach program to inform and educate residents about the urban forest, forestry operations and ways to support the implementation of the Urban and Community Forest Management Plan.	**City Staff Resources** • UFNRP Coordinator **(Lead)** • Field Operations Forestry Supervisor and Staff **(Lead)** • Field Operations Manager • Communications Office • Natural Area Preservation Program • Parks and Recreation **Other Resources** • Volunteers (e.g., Citizen Pruners)	$10,000 to develop and print outreach materials Development of materials could be done with existing city resources.
14	Obtain the highest and best use of wood from trees removed by the City.	**City Staff Resources** • UFNRP coordinator **(Lead)** • Forestry Supervisor and staff **(Lead)** • Public Services Area Administrator • Parks and Recreations (including Golf Courses) **Other Resources** • SE Michigan Resource Conservation & Development Council • Urban Wood Project • Recycle Ann Arbor	Could be implemented with existing resources
15	Create city staff working groups to coordinate activities and projects that impact the urban forest within and amongst city units.	**City Staff Resources** • UFNRP coordinator **(Initial Lead)** • Field Operations Supervisors & Staff Forestry, Streets, Parks, Utilities • Project Management Engineers and Inspectors • Soil Erosion Inspector • Natural Area Preservation program • Planning & Development Services • Parks and Recreation • Other City Units, as needed	Could be implemented with existing resources
16	Engage the Environmental Commission and Park Advisory Commission in urban and community forestry management.	**City Staff Resources** • UFNRP Coordinator **(Lead)** • Environmental Coordinator **(Lead)** • Parks and Recreation Staff • Field Operations Forestry Supervisor and staff **Other Resources** • Environmental Commission • Park Advisory Commission	Could be implemented with existing city resources
17	Review Urban and Community Forest Management Plan periodically and update as needed.	**City Staff Resources** • UFNRP Coordinator **(Lead)** • Field Operations Forestry Supervisor and Staff **Other Resources** • Community	Could be implemented with existing resources

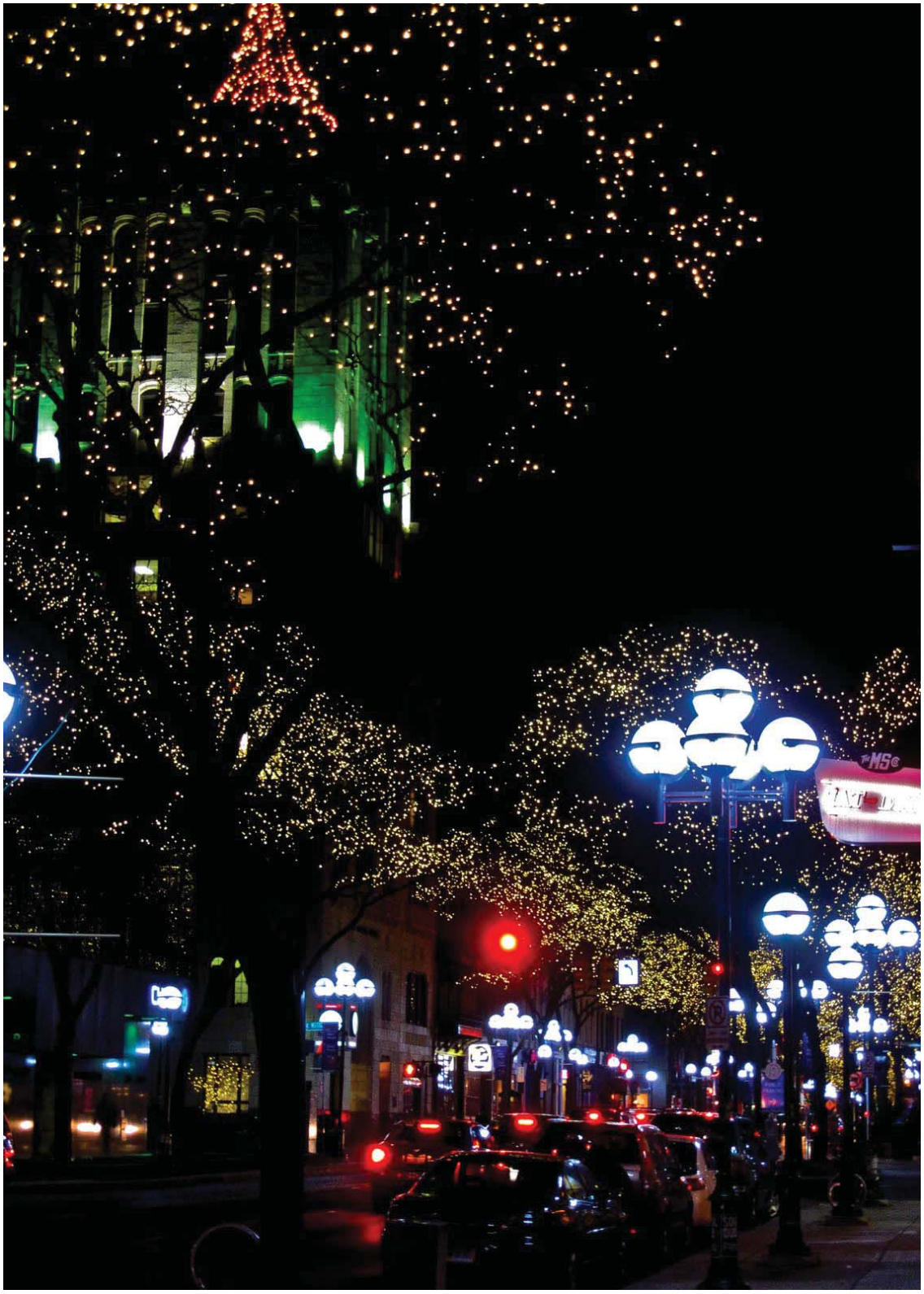
Table 15: Resources needed to implement Recommendations

CONCLUSION

Ann Arbor's urban and community forest is a defining and valued characteristic of Ann Arbor making the city a desirable place to live, work and play. It is a resource that has a tremendous history and legacy of care and management, however, the effects of the emerald ash borer and declining budgets over the last decade have put the resource at serious risk. The Vision, Goals and Recommendations presented in the UCFMP have been created to provide a framework to effectively, proactively and sustainably manage it. While it will take work and additional resources to implement the UCFMP, its implementation will help ensure that Ann Arbor's urban and community forest will continue to be a sustainable and valued part of the community.



APPENDIX



Appendix A
Definitions

Urban Tree Canopy: The layer of leaves, branches and stems of trees that cover the ground when viewed from above.

TREE INVENTORY DEFINITIONS

Location: Street tree locations and planting sites are organized by sequential tree site number and road name, block side, or corner location. An X and Y coordinate was generated for each tree and site and is in State Plane, MI South Zone, International Feet.

Species: Trees are identified by genus and species using both botanical and common names and by cultivars where appropriate.

Tree Size: Diameter is measured at 4-½ feet above the ground, or diameter at breast height (DBH). The diameter of each tree was organized into one of the following DBH classes: 0-5”; 6-10”; 11-15”; 16-20”; 21-25”; 26-30”; 31-35”; >35”

Tree Height: Tree height is measured in feet and organized/recorded into one of the following height classes: 0-10’; 10-20’; 20-30’; 30-50’; 50-70’; >70’

Condition: Indicates the current state of a tree’s health, structural soundness, overall shape, and growth rate. Crown development, trunk condition, major branch structure, twig growth rate, insects/diseases, and root condition are all considered. In general, the condition of each tree is recorded as one of the following categories adapted from the rating system established by the International Society of Arboriculture (ISA).

- **Excellent—**100% - 90% condition class. The tree is nearly perfect in condition, vigor, and form. This rarely used category is generally applicable to small DBH trees or shrubs that have been recently transplanted and are well established. It also applies to large trees that have established themselves successfully in the landscape.
- **Very Good—**89% - 80% condition class. Overall, the tree is healthy and satisfactory in condition, vigor, and form. The tree has no major structural problems, no mechanical damage, and may only have insignificant aesthetic, insect, disease, or structure problems.
- **Good—**79% - 61% condition class. The tree has no major structural problems, no significant mechanical damage, may have only minor aesthetic insect, disease, or structure problems, yet is in good health.
- **Fair—**60% - 41% condition class. The tree may exhibit the following characteristics: minor structural problems and/or mechanical damage, significant damage from non-fatal or disfiguring diseases, minor crown imbalance or thin crown, or stunted growth compared to adjacent trees or shrubs. This condition can also include trees that have been topped, but show reasonable vitality and show no obvious signs of decay.
- **Poor—**40% - 21% condition class. The tree appears unhealthy and may have structural defects such as codominant stems, severe included bark, or severe trunk and/or limb decay. A tree in this category may also have severe mechanical damage, crown dieback, or poor vigor threatening its ability to thrive. Trees in poor condition may respond to appropriate maintenance procedures, although these procedures may be cost-prohibitive to undertake.
- **Critical—**20% - 1% condition class. The tree has a major structural problem that presents an unacceptable risk, has very little vigor, and/or has an insect or disease problem that is fatal and, if not corrected, may threaten other trees on the property.
- **Dead—**0% condition class. This category refers to dead trees only.

Maintenance Need: Each tree/inventoried site is classified into one of the following recommended maintenance categories:

- **Priority 1 Removal—**These trees have defects that cannot be cost-effectively or practically treated, have a high amount of deadwood, and pose an immediate hazard to a property or person. Davey recommends that these trees be removed immediately.
- **Priority 2 Removal—**These trees are not as great of a liability as Priority 1 Removals, being smaller and/or less hazardous, although they are also recommended for removal. Davey recommends that they be removed as soon as possible.
- **Priority 3 Removal—**Trees designated for Priority 3 Removal do not pose a public hazard and are small, dead, or poorly formed. Smaller dead trees and failed transplants are in this category. Large trees in this category are generally poorly sited, of inferior quality, and pose little to no threat to the community.
- **Priority 1 Pruning—**Trees in this category need pruning to remove hazardous deadwood limbs greater than four inches in diameter and/or have broken, hanging, or diseased limbs.
- **Priority 2 Pruning—**These trees need pruning to remove hazardous deadwood limbs greater than two, but less than four, inches in diameter.
- **Large Tree Routine Pruning—**Trees in this category have characteristics that could become risks if not corrected. Deadwood limbs are less than two inches in diameter.
- **Small Tree Routine Pruning—**This category includes small growing trees that can generally be maintained from the ground, *i.e.,* crabapples, serviceberry, dogwood, etc., and other trees 20 feet or less in height.
- **Training Pruning—**This category includes trees under 20 feet tall with correctable structural problems or minor amounts of deadwood that pose minimal threat of personal injury or property damage. Inexpensive pruning at this stage significantly affects the future of these trees. Young trees in this category that will be large at maturity generally require an annual pruning or inspection.
- **Plant—**Data on vacant planting sites is collected using policies on minimum tree lawn width for mature tree size, spacing between trees, distances from intersection and traffic safety signs, and the presence of utilities.
- **Stump Removal—**Stumps are identified separately since they may not be removed at the time of a tree removal.

Overhead Utilities: Presence of overhead utilities at the tree site.

- **Yes—**Overhead utilities are present at the site.
- **No—**Overhead utilities are not present at the site.

Appendix B
Forestry Staff & Contractor Recommendations

CURRENT STAFFING (2013)

Forestry maintains a crew of 8 full time employees (FTEs)-- 3 FTEs have the necessary training and certification to aerially prune and remove trees; and 5 FTEs have the training necessary to operate equipment, perform ground level pruning, assist in tree planting, provide traffic control and serve on the grounds crew. The chart below provides the level and the forestry skills and abilities that each level must possess.

Based on Field Operation Technician- Forestry and Facilities Systems Progression (as 08.01.2008)
The Forestry and Facilities Field Operations Technician Progression is currently being revised and future city employees will be held to the updated standards.

Union Progression Level*	Number of Forestry Staff	Technical Forestry Skills and Abilities
5 **(Arborist path)**	2	Demonstrated knowledge of all items required for Levels 2, 3 & 4, and the following: crew leadership; job site set-up and equipment selection; ability to safely lower wood around/through obstacles; large tree planting.
4 **(Arborist Path)**	**2**	Demonstrated knowledge of all items required for Levels 2 and 3, and the following: small tree planting and pruning; tree risk assessment; roping and rigging; tree bracing/cabling; tree climbing with rope and saddle; prentice operation; Line Clearance Tree Trimmer certification; CDL-A or CDL-A with N endorsement.
3	**1**	Demonstrated knowledge of all items required for Level 2 and the following: basic city ordinances and codes; inventory control practices; bucket truck certification
2	**1**	Demonstrated knowledge of: chain saw safety; change/sharpen chain saw; small tree planting; young tree training; hazardous tree identification technique; basic tree form and structural integrity; proper pruning cuts, including dead wood trimming; powerline awareness; knot tying (5 knots); ground-level pole pruning; loading brush and wood into chipper; bucket rescue and site clean-up
1	**0**	Map reading, mechanical aptitude and high school diploma. Technical skills specific to Forestry are not required for this level.
Tree Trimmer (Not in Union Progression)**	**2 (Tree Trimmer I and Tree Trimmer II)**	Demonstrated knowledge and ability to prune, remove and plant large and small trees; ability to operate, use and maintain forestry equipment, including chain saws, pole pruners, bucket truck, chipper and prentice.

*When the Union progression was adopted in 2005, the AFSCME Union transition rules allowed for existing employees to be exempted from meeting certain technical competency requirements.

**City Forestry staff who aerially prune or remove trees must have specialized training approved by the US Department of Labor Occupational Safety and Health Administration (OSHA) to work within 10 feet of energized power lines and equipment (Line-Clearance Tree Trimmer- LCTT). There are currently 3 staff that are LCTT certified (one Level 5 and two Non-Progression Tree Trimmers).

A typical street tree removal/trimming Forestry crew is made up of 4 staff with additional staff used if traffic control is required. With the current staffing level, Forestry maintains one, 4-person tree removal and trimming crew. Forestry staff that are not on the tree trimming/removal crew perform stump removal, tree planting, ground level tree trimming, contractor oversight, field investigations and other forestry related activities.

CITY STAFFING RECOMMENDATIONS

As described in Chapter 1, Forestry currently has a backlog of tree removals, stump removals, tree trimming

and resident requests that continues to grow. For Forestry staff to assist in addressing this backlog, respond to resident request in a timely manner and handle emergencies, **staffing levels need to be increased to 12 FTEs.** There are many benefit of having a well-staffed in-house Forestry crew including, a strong knowledge of the city and its tree resource, an acute understanding of the desires and needs of the community and a sense of ownership and pride in Ann Arbor's urban and community forest and the work they do to improve its canopy. With 12 FTEs Forestry could maintain two trimming/removal crews and one crew that performed other forestry activities, such as stump removal, tree planting, and field investigations or assist with trimming/removals. Seasonal temporary workers (2-3) would be needed for post-planting care activities (e.g., watering, mulching, trimming) and could also be utilized as ground workers for tree work and planting. Below provides the recommended crew composition based on technical forestry skills and abilities.

Number of FTEs	Technical Forestry Skills and Abilities
5	Technical Forestry skills and ability equal to Progression Levels 4-5/Tree Trimmer I/II, including skilled bucket operation/tree climber, LCTT certified.
6	Technical Forestry skills and ability equal to Progression Levels 2-3, including proficient forestry equipment operators and skilled ground crew.
1	Technical Forestry skills and ability equal to Progression Level 1, interest in forestry and tree care.

The following matrix provides the preferred number of Forestry FTEs needed to perform each of Forestry activity.

	Field Operations Technician Progression Level						Total # of FTEs
Forestry Activity	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Tree Trimmer I/II (Non-Progression)**	
Tree Trimming (small trees)	1		1	1			3
Tree Trimming, Residential streets (low traffic volume)			1	2 and/ or		1	3
Tree Removals, Residential streets (low traffic volume)				1	2	1	4
Tree Removals, Near Electrical lines/large trees/decayed trees				1	1-2	1-2	4
Tree Trimming or Removal, high traffic areas	1-2	1-2		1	1	1	5-6
Tree Planting		1	2	1 and/or	1 and/or	1	4
Field Investigations				1 and/ or	1 and/ or	1	1-2

The recommendation of 12 FTEs would help to address the backlog, however in order to completely eliminate it and to move to a proactive tree maintenance program additional city Forestry staff and/or the use of contractors will be necessary.

FORESTRY CONTRACTORS

Forestry contractors have been and will continue to be a part of Ann Arbor's urban and community forestry program. They were instrumental in assisting the city in removing the 10,000 dead and dying ash trees growing along streets and in city parks throughout the city; have helped in the city's street tree replanting efforts; and assist with tree and debris removal after large storm events. A benefit of using contractors is that forestry's service needs can easily be matched to available funding and workloads.

The implementation of the UCFMP and development of a sustainable urban and community forest will require a lot of work and assistance from both city Forestry staff and forestry contractors. Each group offers a special set of skills and strengths that should be utilized in order for the community to gain the greatest value and benefit from the resource. The following is a list of work/tasks that are best suited for each group.

FORESTRY ACTIVITIES BEST SUITED FOR CITY FORESTRY CREWS

- Tree removals and trimming in areas where…
    a. there is high traffic volume and/or pedestrian traffic.
    b. lane closures or no parking zones are required.
    c. there is public concern regarding the tree work.
- Small scale street tree planting (<200 trees/season)- large scale tree planting (>300 per season) takes Forestry away from necessary tree removal and trimming work.
- Park tree planting
- Tree maintenance activities for other city units (including clearance for construction projects, disposal of dam logs, tree removal for sewer maintenance, large tree removal for golf courses).
- Resident tree maintenance requests

FORESTRY ACTIVITIES BEST SUITED FOR FORESTRY CONTRACTORS

- Very large tree pruning and/or removal that require specialty equipment, such as a crane.
- Tree pruning/removals for trees that are not accessible by equipment and/or those that require excessive staff time.
- Routine area tree trimming (routine pruning cycle trees)
- Large scale street tree planting (>300 trees per season)

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Appendix C
UCFMP Public Engagement

Appendix C1
Advisory Committee Members

Name	Affiliation/Organization
Paul Bairley	Retired City Forester, City of Ann Arbor
Lynn Borset	Ann Arbor Tree Conservancy Virginia Park Neighborhood
James D'Amour	Sierra Club, Huron Valley Group Maplewood Avenue Association
Neal Foster	Orchard-Hills Maplewood Homeowners Associations Millers Creek Action Team
John Lawter	Park Advisory Commission, City of Ann Arbor
Ann Lund	Broadway Neighborhood
Mike Martin	First Martin
Rita Mitchell	Neighborhood Alliance
Matt Naud	Environmental Commission, City of Ann Arbor (city staff)
Kris Olsson	Huron River Watershed Council
Jeff Plakke	University of Michigan Botanical Gardens and Arboretum
Harry Sheehan	Office of the Washtenaw County Water Resources Commissioner
Peggy Sorvala	DTE Energy
Kathy Stroud	Traver Association

Appendix C2

Stakeholder Groups Invited to Participate in Focus Groups

All organizations listed were invited to participate in each Focus Group Session regardless of previous participation.

INVITED STAKEHOLDERS	FOCUS GROUP (FG) PARTICIPATION		
	FG #1	FG #2	FG #3
CITY ADVISORY COMMISSIONS			
Parks Advisory Commission (PAC)	X	Served on Advisory Committee	
Planning Commission	X	X	
Environmental Commission	X	Served on Advisory Committee	
Transportation- (DDA Transportation Committee)			
Energy Commission	X		
CITY UNITS			
Project Management	X	X	X
Systems Planning	X	X	X
Planning	X	X	X
Field Operations (Street Maintenance, Utilities, Park Operations, Forestry)	X	X	X
Parks + Recreation (including Natural Area Preservation)	X	X	X
Open Space and Parkland Preservation Program		X	X
OTHER AGENCIES / PUBLIC GROUPS			
Ann Arbor District Library			
Ann Arbor Community Education & Recreation Department			
Ann Arbor Public Schools			
Ann Arbor Transportation Authority (AATA)			
Center for Independent Living			
Concordia University		X	X
Michigan Department of Natural Resources (MDNR)	X	X	X
Michigan Department of Transportation (MDOT)		X	X
Southeast Michigan Resource Conservation and Development Council (SEMIRCD)	X		
University of Michigan (Planning Office & Grounds)	X	X	X
Washtenaw County MSU Extension			
Washtenaw County Parks and Recreation Commission			
Washtenaw County Road Commission			
Washtenaw County Water Resources Commissioner	X	Served on Advisory Committee	

INVITED STAKEHOLDERS	FOCUS GROUP (FG) PARTICIPATION		
	FG #1	FG #2	FG #3
BOARDS/PRIVATE COMPANIES/BUSINESS ORGANIZATIONS/COMMERCIAL NEIGHBORHOODS			
Arborland Consumer Mall			
Ann Arbor Area Convention and Visitors Bureau	X	X	X
Ann Arbor Board of Realtors			
Ann Arbor Chamber of Commerce		X	X
Briarwood Mall			
Builders and Remodelers Association of Greater Ann Arbor			
DTE Energy	X	Served on Advisory Committee	
Fraleigh's Landscape Nursery			
Greenstreet Tree Care			
Guardian Tree Experts		X	
Kerrytown District Association			
Kerrytown Shops			
Lodi Farms			
Main Street Area Association			
Midwestern Consulting			
North Campus Plaza Shopping Center			
Packard and Stadium Area			
Plymouth and Broadway Area			
~~Plymouth Mall Merchants Association~~ ***No Longer Active***			
State-Packard Association			
State Street Area Association			
South University Area Association			
Turner Garden Center			
West Washtenaw Business Association			
Urban Foresters			
NON-PROFIT GROUPS/ENVIRONMENTAL ORGANIZATIONS			
Ann Arbor Garden Club	X		
Ann Arbor Tree Conservancy (AATC)	X	Served on Advisory Committee	
Allen Creek Watershed Group			
Allen Creek Greenway Conservancy			
Ecology Center			
Elizabeth Dean Fund	X		
Fleming Creek Advisory Council		X	
Friends of Wildlife			
Global ReLeaf of Michigan	X		

INVITED STAKEHOLDERS	FOCUS GROUP (FG) PARTICIPATION		
	FG #1	FG #2	FG #3
NON-PROFIT GROUPS/ENVIRONMENTAL ORGANIZATIONS (CONT.)			
Huron River Watershed Council	X	Served on Advisory Committee	
Leslie Science and Nature Center			
Mallets Creek Association			
Mallets Creek Coordinating Committee			
Michigan Botanical Club- Huron Valley Chapter		X	
Millers Creek Action Team	X	Served on Advisory Committee	
Nichols Arboretum and Matthaei Botanical Gardens	X	Served on Advisory Committee	
Project Grow	X		
www.seekids.org			
Sierra Club- Huron Valley Group	X	Served on Advisory Committee	
The Stewardship Network			
Urban Wood Collaborative / Urbanwood.org		X	X
Washtenaw Audubon Society			X
Washtenaw Bicycling and Walking Coalition (WBWC)			
WildOnes			
RESIDENTIAL GROUPS			
Alliance of Neighborhoods	X	Served on Advisory Committee	
Ann Arbor Hills Condominium Association			
Ann Arbor Citizens Advisory Committee (Downtown)		X	
Arrowwood Hills Cooperative, Inc.			
Berkley Avenue Neighborhood Association			
Brentwood Square Condominium Association			
Broadway Area Neighborhood Association	X	X	X
Bromley Homeowners Association			
Brooks Street Neighborhood Association			
Brookside Improvement Association			
Bryant Community Council			
Burton Commons			
Chalmers Neighborhood Association			
Chapel Hill Condominiums Assoc		X	X
Clinton-Georgetown Area Neighborhood Association			
Colonial Square Cooperative			
Cranbrook Tower Senior Association			
Crossings of Ann Arbor Condominium Association		X	X
Dhu Varren on the Park Homeowners Association			

INVITED STAKEHOLDERS	FOCUS GROUP (FG) PARTICIPATION		
	FG #1	FG #2	FG #3
RESIDENTIAL GROUPS			
Downtown Area Citizens Advisory Council			
Earhart Knolls Homeowners Assoc			
Earhart Village Homes Association			X
Forest Hills Cooperative			
Foxfire Condominium Association			
Freeman Estates Neighborhood Association			
Friends of Dicken Woods			
Friends of Greenview and Pioneer	X		
Friends of Huron Parkway			
Friends of Narrow Gauge Woods			
Friends of West Park			
Geddes Farms Homeowners Association			
Geddes Lake Cooperative Homes		X	
Germantown Neighborhood Assoc			
Glazier Way Association			
Glendale-Liberty Neighborhood Association			
Greater Sunset/Brooks Neighborhood Association	X	X	X
Greenview/Pioneer Nature Areas			
Heritage Ridge Condominium Assoc			
Hilltops (Sumac Lane)			
Huron Chase Condominium Association			
Huron Hills Woodlands Neighborhood Association			
Jackson-Huron Neighborhood Association			
James H. McDonald's Neighborhood Association			
Kensington-Marlborough Neighborhood Association			
Kimberly Hills Neighborhood Association			
Lawton Area Homeowners Association			
Liberty Glen Homeowners Association			X
Liberty Pointe Condominium Association			
Lower Burns Park Neighborhood			
Maplewood Avenue Association	X	Served on Advisory Committee	
Minerva Road Homeowners Association			
Mushroom Park Neighborhood Group			X
Neighborhoods of Leslie Science Center/ Black Pond Woods/ Traver Creek			
Newport Hills Condominium Assoc			

INVITED STAKEHOLDERS	FOCUS GROUP (FG) PARTICIPATION		
	FG #1	FG #2	FG #3
RESIDENTIAL GROUPS			
Newport West Condominium Association			
North Area Neighborhood Assoc			
North Burns Park Association			
North Central Property Owners Association			
Northside Neighborhood Association			
Oak Ridge Neighborhood Association			
Off Broadway Neighborhood			
Old Fourth Ward Association			
Old Hickory Place Condominium Association			
The Old West Side Association	X	X	X
Orchard Hills/Maplewood Homeowners Association			
Orkney/Culver Neighborhood			
Oxbridge Neighborhood Association	X		
Parkway Meadows			
Pittsfield Village Condominium Association			
Plansmart	X		
Platt Road Neighborhood Area		X	X
Ridgewood Condominium Association			
River House Condominium Association			
Riverside Park Place Condominium Association			
Riverwood Homeowners Assoc			
Sisters Lakes Watershed Conservation Association	X		
Sloan Plaza Condominium Association			
South Main Neighbors Association	X	X	X
South Maple-West Liberty Homeowners Association			
South University Neighborhood Association			
Southeast Ann Arbor Natural Features Task Force			
Spring-Brooks Summit Neighborhood Association		X	
St. Aidan's Episcopal and Northside Presbyterian Churches	X		X
Tuomy Farm Area Association			
Tuomy Hills Area Homeowners Association			
University Townhouses			
Vet's Park Triangle Neighborhood Association			
Village Cooperative Homes, Inc.			
Vintage Valley Homeowners Association			X
Virginia Park Neighborhood Assoc	X	X	X
Walden Village Condominium Association			

INVITED STAKEHOLDERS	FOCUS GROUP (FG) PARTICIPATION		
	FG #1	FG #2	FG #3
RESIDENTIAL GROUPS			
Walden Woods Maintenance Corp			
Westover Hills Homeowners Association			
Wildwood Park Neighborhood Association			
Woodcreek Homeowners Association			X
Woodhaven Hills Homeowners Association			

Appendix C3
Summary of Public Workshops (May/June 2010)
Issues & Opportunities to Improve
Ann Arbor's Urban and Community Forest

Both workshops demonstrated that Ann Arbor residents are passionate and concerned about the health and long-term sustainability of Ann Arbor's urban and community forest. Residents provided a wide range of feedback on why the urban and community forest is important to them, highlighting the fact that it is critical to the health of the city.

Benefits most mentioned by residents included aesthetic/therapeutic benefits of trees, as well as shade, microclimate moderation and water quality/stormwater benefits. Participants acknowledged that maintaining a healthy urban and community forest was critical to ensuring that these benefits can be sustained into the future.

The discussion of issues and opportunities relative to both tree planting and maintenance/removals highlighted a number of key points:

- Funding for city staff and resources for tree planting and tree maintenance appears to be inadequate, and participants are highly concerned about funding availability. There was a feeling that the city's leadership could better understand the value and benefits of the urban forest, and should give trees stronger consideration when establishing funding priorities.
- Participants want additional tree plantings to continue (or accelerate), but recognize that funding for maintenance is limited. Participants noted that the city departments and agencies should better coordinate their tree maintenance efforts.
- The process for determining when to remove a tree is unclear and needs to be refined. Participants were worried that often trees are too easily removed. A decision process needs to be established to clearly identify when a removal is to occur.
- Participants felt that the city needs to explore other funding sources and/or volunteer mechanisms for both planting and tree maintenance. Partnerships with neighborhood groups, schools, or non-profits could provide resources to better manage the urban forest.
- Education about tree issues, practices, policies, and maintenance is important to the sustainability of the urban forest. This includes better notification of changes, as well as teaching people about maintenance practices and clarifying city policies.

  Participants felt that strengthening partnerships with other agencies, institutions, organizations, and operations that impact the urban forest is highly important. This includes DTE, the U of M, the DDA, and others. Written or stronger agreements could be pursued to ensure long-term cooperation.

- Overall, participants felt that the urban forest management plan should consider programs/policies/strategies that apply to trees on private property (both residential and commercial) in addition to

public trees. These strategies could include incentive programs or updated ordinances. Enforcement is important to success.

- A number of participants discussed the role of trees in providing food sources (i.e. food forests).

The following pages provide aggregated results from both workshops, combining written comments (from the feedback sheets) with comments recorded during the group discussion. The numbers after a comment indicates how many times that comment, or a very similar comment, were recorded during the workshop.

TOPIC 1: PLAN DIRECTION

What benefits of trees are most important to you?

Overall/Collective Benefits (9 total)

- All benefits equally important (8)
- They (trees) are there

Habitat (13 total)

- Habitat functions (6)
- Habitat value (wildlife and people) (5)
- Homes for native plants and wildlife.
- Increases biological/ecological diversity

Water Quality (18 total)

- Watershed protection/runoff management (7)
- Water quality/cleaning/decreased runoff/stormwater benefits (6)
- Hydrological improvements (3)
- Stormwater cost reduction (1)
- Flood reduction

Sustainability/Air Quality (8 total)

- Carbon sequestration/CO_2 uptake (3)
- Air quality/pollution mitigation (2)
- Sustainability of trees, balance with urban development
- City sustainability
- Important resource/source of clean air and water

Resource Value/Food (9 total)

- Food source for people (fruits + nuts). "Food Forest." Urban forest gardening. (7)
- Can provide compost materials
- Urban wood/re-use/harvesting

Aesthetic/Therapeutic (31 total)

- Beauty/aesthetics (20)
- Therapeutic/psychological benefits (10)
- Seasonal changes

Shade/Heat/Microclimate/Energy Savings (19 total)
- Moderates local climate/provides shade/summer cooling (12)
- Shade and heat control/cost savings (7)

Recreation/Walk-ability (3 total)
- Improves community walk-ability (2)
- Recreational benefits (1)

Community Character (7 total)
- Traffic calming (added after voting) (2)
- Sense of place/landmarks/orientation (2)
- Welcoming/softening of the environment
- Attracts people/visitors
- Community asset

Property Values (2 total)
- Contributes to real estate/property value (2)

On a scale of 1-5 how important to you is improving the quality of the urban forest and/or better managing the urban forest? (Circle below)

From feedback ***BOARDS***:

not at all important	1	2	3	4	5	very important
				4	*19*	

On a scale of 1-5 how strongly do you feel the urban forest plan should explore or consider policies or strategies for trees on private as well as public land? (Circle below)

From feedback ***BOARDS***:

not at all consider including private land	1	2	3	4	5	strongly consider-including private land
		1	*1*	*6*	*12*	

TOPIC 2: TREE PLANTING

What <u>ISSUES</u> do you see as important for the plan to consider relative to <u>tree planting</u>?

Benefits (2 total)
- Mature trees vs. young. Mature trees are not equivalent to young trees
- Trees are small when they are planted – how long until they provide benefits?

Numbers of Trees (2 total)
- Rate of plantings
- Appropriate rate compared to removals

Tree Diversity/Selection (7 total)

- Need to increase species/diversity (3)
- Age class relative to site
- Need to have the "right" tree mix
- No invasive species, need to use local natives
- Need to replant Ann Arbor with larger shade trees

Planting Considerations (6 total)
- Hydrology and soil type
- Important to replace and fill gaps
- More choices for under wires
- Overhead wires are an issue
- Spacing of new street tree plantings appears to be inconsistent (15' to 80')
- Plant trees that require less maintenance

Follow-up Care/Maintenance (3 total)
- Excellent follow up care is needed to ensure survival. Is there money for this? (2)
- Focus on maintenance of what we have.

Funding Related (10 total)
- Funding is critical (2)
- Need proper resources and staff (2)
- Use Dean Fund as intended
- What funds are available for staff and planting?
- Political issues – need to advocate for trees' place in the city budget
- Dean Fund provides ~$80k/year – how can the fund grow?
- Accomplishing goals with minimum increases in taxes or fees
- Not enough staff + funding available for planting. What % of staff time is dedicated to forestry?

Balancing Priorities/Competing Interest (5 total)
- Consideration of solar and wind installations/balance plantings (2)
- City priorities – budget.
- Managing conflicts with other goals like increasing density or removing invasive species or non-native.
- Manage conflicts between tree planting and other city plans/initiatives

Visual Impacts/Traffic Safety (4 total)
- Visibility in lawn extension, right-of-way/some trees have a canopy that is too low (2)
- Site clearance + viewing at intersections can be impacted by poorly placed trees (2)

Using Forestry Knowledge (2 total)
- Use forestry expertise in plan reviews
- Need forestry expertise/input on road projects

Incentives/Legal Mechanisms (4 total)
- Use positive rewards/incentives to encourage plantings
- Avoid forcing individuals/private home owners to plant, use incentives
- Residential different from developer requirements
- Shopping centers, commercial property --> provide incentives for owners to plant trees

Partnerships (6 total)

- School sites have been used for plantings in the past – many trees removed during a utility project and not replaced
- Work with others who do maintenance around trees (i.e. mowing) to limit damage
- DTE/U of M/ DDA policies
- Relationship between city and U of M concerning trees is not formalized
- Relationship between city and DDA relative to trees
- Relationship between city and Washtenaw County relative to trees

Need for Action (4 total)
- Do it now – it is time
- Need to act on opportunities
- Asian longhorn beetle infestation – planning needed?
- Focus on public lands first.

What <u>OPPORTUNITIES</u> do you see as important for the plan to consider relative to <u>tree planting</u>?

Planning Process (5 total)
- Have individual plans for individual neighborhoods – develop with neighborhood input (3)
- Neighborhood identity
- Lack of involving residents in decision making

Tree Farm (3 total)
- Establish a tree farm – was once a nursery at the Ann Arbor airport (2)
- Municipal tree farm – don't buy trees from commercial businesses

Tree Planting/Quantities (3 total)
- Replacement of removed trees/Accelerate replacement of ash trees (2)
- Establish replacement to removal ratios

Tree Planting/Mix/Conditions (15 total)
- Choose/establish the proper density and mix of trees (5)
- "Right tree for the right place"/Plant appropriate to the condition (hydrology, soils, location, wires) (3)
- Emphasize native trees and local genotypes (3)
- Reduce habitat fragmentation – trees can help (2)
- Consider life-cycle of trees
- Spacing of trees, no large gaps, enough room for each tree

Funding (6 total)
- Pursue grant opportunities/seek alternative funding sources (2)
- Use other kinds of funding resources – utilize collective generosity in our community and volunteer involvement for raising trees, planting trees, caring for trees
- Lobby council to keep adequate tree funds in budget
- Don't put tree funds in general fund and rely on Dean Fund

Resident Volunteers/Stewards (8 total)
- Develop a stronger volunteer network. Work with volunteers and "stewards" to aid in planting and planning efforts (2)
- Engage residents in follow-up care/volunteer planting and maintenance activities (2)
- Educate people (2)

- Major citizen involvement – including school kids
- Provide resources to help residents proactively care for trees

Partnerships/Programs (9 total)
- Forge better relationships with partners (U of M, DDA, MDOT). Have written agreements (3)
- Partner with schools and natural areas to establish nurseries (2)
- Funding partnering between private/public.
- Public aware of issues due to ash borer.
- Partner with other entities/non-profit/schools/community groups/in kind services
- Leverage forestry expertise in other planning realms

Incentives/Ordinances/Requirements (4 total)
- Set standards that will endure beyond political leadership and personnel changes (2)
- Enhance tree ordinance. Developers to pay/offset for plantings they don't put on-site
- Provide incentives

Sustainability/Resilience (2 total)
- Trees can increase local community resilience – encourage a move away from fuel consumption.
- Consider planting enough trees to minimize automobile impact on air quality.

Food Supply (3 total)
- Fruit + nut trees (Bloomington, Indiana) (2)
- Compost can be a source of income from trees

Improve the look of entryways to city (State, Jackson, Ann Arbor-Saline) (1 total)

TOPIC 3: TREE MAINTENANCE & REMOVAL

What ISSUES do you see as important for the plan to consider relative to tree maintenance + removal?

Maintenance around trees (7 total)
- Mowing and weed whacking girdles trees (4)
- Identify invasive species (Buckthorn) that compete with good trees
- Leaves clog gutters
- Leaf pick-up coordination

Pruning/utility or sight clearance (8 total)
- Conflict between utility pruning + community goals – need better pruning practices (3)
- DTE + street paving equipment – coordinate efforts better to protect tree health
- Bury utilities to avoid aggressive cutting of trees
- Improve tree pruning practice, use best practices
- Safety issues with trees that are not maintained properly
- Low hanging branches

Tree removal process (8 total)
- Trees are removed too easily (sometimes just at request of homeowners) – need a better process to determine removals
- Good trees are sometimes removed when poorer condition trees are not

- Don't cut big trees if possible, trim and maintain
- Need to discuss with residents why a tree is slated for removal
- Citizens must have input regarding tree removals
- Do not remove healthy trees even if homeowner wants them removed
- A philosophy of preserving trees first, removal only when necessary
- County Drain or Road Commission has removed trees

Funding/prioritization for maintenance (11 total)
- How is maintenance paid for? Need more funding (5)
- State of urban forest is declining – need more resources to maintain/avoid removals (3)
- Right equipment and personnel (2)
- Maintenance needs to be prioritized to protect the trees

Tree + sidewalk conflicts (3 total)
- Need more careful consideration of sidewalk conflicts/roots
- People have to repair their own sidewalks, but not manage street trees, confusing
- Sidewalk replacement – cost of tree versus cost of sidewalk

Ordinances/Regulations (2 total)
- City does not have the ordinance needed by the Arbor Day Foundation to be a "Tree City"
- Not enough enforcement of current codes (i.e. planting/landscaping ordinance)

Education, public and volunteers (2 total)
- Educate residents about maintenance practices + maintenance activities
- Residents not involved with maintenance + removal activities enough, engage them

Other concerns
- Pollen
- Messy trees
- Expanding management to private trees might spread out resources too much
- Maintenance of new trees - Water and prune newly planted trees

What <u>OPPORTUNITIES</u> do you see as important for the plan to consider relative to <u>tree maintenance + removal?</u>

Plant trees in groves, mow around the entire grove, not individual trees (2 total)

Reduce external impacts to trees (3 total)
- Encourage burying of utilities
- Reduce use of deicers on roads
- Stop trimming trees to accommodate street resurfacing plan

Maintenance approaches (7 total)
- Plan to make "fair" condition trees into "good condition" trees/improve health (2)
- Care for existing fruit + nut trees properly (2)
- Plant trees that require less maintenance (2)
- Move beyond a "minimize liability" approach to tree maintenance

Utilize volunteers/partnership opportunities (7 total)

- Train/educate volunteers (2)
- Involve other groups (i.e. Parks Advisory Council)
- Use volunteers for maintenance
- Washtenaw County Drain Commissioner – coordinate to prevent unwarranted removals
- Train/educate property owners to maintain trees up to 20' in right-of-way
- Forestry students/high school/community college students

Maintenance funding (4 total)
- Fundraise to provide money for maintenance (2)
- Allow homeowners to help pay for maintenance directly
- Special assessments for trees (similar to those for street lighting/improvements)

Removal opportunities /approaches (3 total)
- Find uses for removing invasive species (i.e. recipes)
- Other municipalities (i.e. Carmel, CA) don't allow trees to be cut down on private property without just cause
- Better notification system for removals – include in water bills

Other opportunities
- Use rubber sidewalks
- Consider obtaining easements to move sidewalks away from trees when in conflict
- Forestry can defend trees against other departments

TOPIC 4: PUBLIC ENGAGEMENT (FEEDBACK SHEET)

What groups, organizations, or individuals do you feel should be represented on a stakeholder group?

Specific entities/organizations/groups
- Parks Advisory Council (PAC) (4)
- Neighborhood organizations (4)
- Ann Arbor Public Schools (3)
- Sierra Club (3)
- Audubon Society (2)
- Natural Areas Preservation (NAP) and volunteers
- Washtenaw County Road Commission
- Washtenaw County Drain Commissioner
- Engineering department (city)
- DNR
- Dean Fund
- Transportation Safety Committee (TSC)
- Native foresters: people who have no agenda but to help make a plan for the urban forest management.
- Ecology Center
- Urban Wood Collaborative
- SEMIRCD (Jessica Simmons)
- Allen Creek Watershed Group
- Tree lovers (AATC – Ann Arbor Tree Conservancy)
- Virginia Park Neighborhood
- Michigan Botanical Club
- www.seekids.org

General groups/representation

- Utility companies
- Ann Arbor residents
- Ann Arbor visitors
- Citizens from each ward
- Certified or professional arborists
- Representatives from city entities with possible conflicts, planning, transportation.

Which public outreach options do you want to participate in?

E-mail notifications	*14*			
Websites:	**City website**	**Facebook**	**Other**	**Online surveys**
	9	*1*		*4*

Public Meetings:	**City-wide**	**Area Specific**	**Interviews**
	8	*5*	*3*

Other planning considerations

- Open process with public volunteers - not government appointees.
- Include those who feel that trees should be controlled by property owner

OTHER COMMENTS

- Urban Tree Canopy Analysis (UTC) does not account for quality/condition of trees
- Need public input on how tree condition is determined/qualified
- Need better assessment/considerations for invasive trees
- Plan must encourage burying utilities, reduce deicers, balance sidewalk costs.
- Educate the community
- Enforce ordnances consistently, chapter 40.
- Empower individuals to help care for urban forest, making correct decisions with education.
- Protection/management of trees on riverbanks and levees (i.e. millrace embankment below Argo Pond). I serve as a consultant to Sac. Area Flood Control Agency on this issue. Cutting down all trees and leaving roots in embankment that will eventually become seepage conduits is very bad idea.
- Put city “rules” related to trees on forestry website, not just reference to entire book of city codes.
- I was part of the Virginia Park tree planting group fall of 2009, which I would like to see repeated fall 2010.
- Some of my neighbors were not aware of the project and would like to participate this fall.

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Appendix C4
Summary of Public Survey #1 (October 2010)
Issues & Opportunities to Improve
Ann Arbor's Urban and Community Forest

Survey #1 was an on-line survey that was available through Survey Monkey. The survey was open from August-October 2010 and 398 people completed it. A summary of the survey results are provided below.

DEMOGRAPHIC QUESTIONS

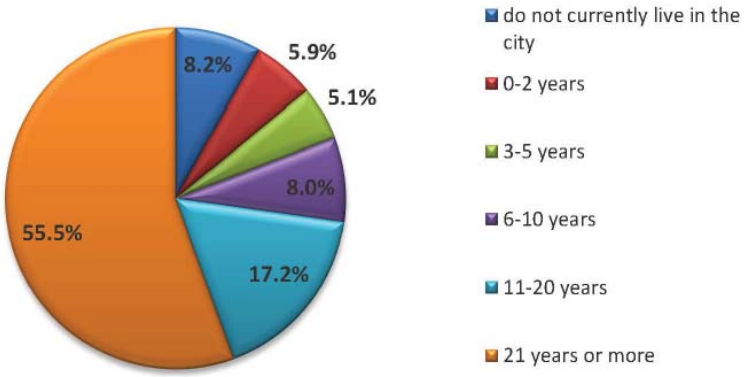
1. **What draw you to Ann Arbor?**

   SURVEY RESULTS

   - **88.6% Live in Town**
   - **54.3% Work in Town**
   - **6.3% Attend School in Town**

2. **What is the ZIP Code where you live? _____**

3. **How many years have you lived in the city?**



BENEFITS OF TREES

4. **What <u>environmental</u> benefits provided by trees are MOST important to you? (Check all that apply.)**

   SURVEY RESULTS

   - **87% Habitat Value**
   - **85% Climate and Temperature Moderation**
   - **81% Air Quality**
   - **57% Carbon Reduction or Sequestration**
   - **54% Water Quality Protection**
   - **50% Stormwater Management**
   - **37% Flood Protection**

5. What social benefits provided by trees are MOST important to you? (Check all that apply.)

SURVEY RESULTS

- **89% Provide Shade**
- **88% Aesthetics**
- **85% City Character & Sense of Place**
- **61% Therapeutic or psychological benefits**
- **35% Human Health**
- **24% Provide Food**

6. **What economic benefits provided by trees are MOST important to you? (Check all that apply.)**

SURVEY RESULTS

- **90% Reduce Cooling and/or Heating Costs**
- **72% Increase in Property Value**
- **56% Attract People, Businesses, or Visitors**
- **54% Reduce Stormwater Infrastructure Costs**
- **24% Improve Shopping Experience**
- **16% Source of Lumber and Wood**

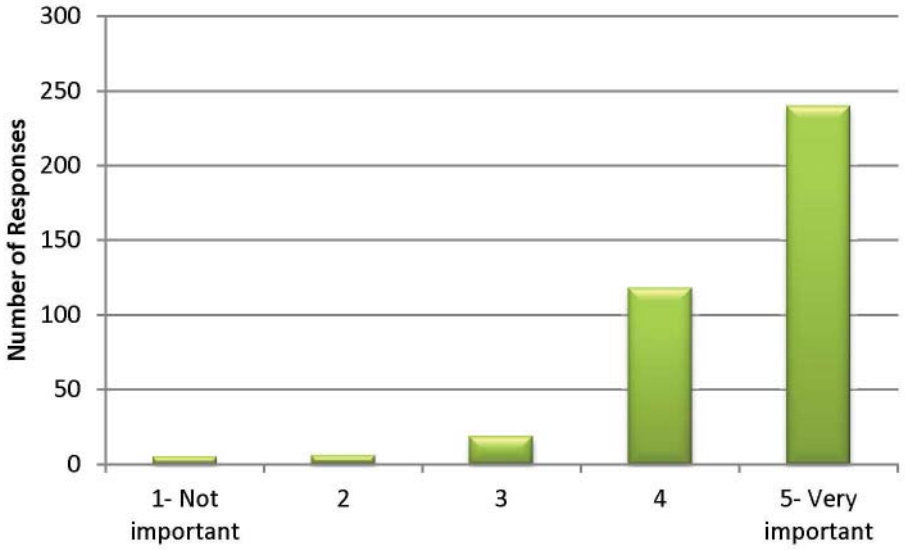
7. Are there other benefits provided by trees that are important to you? Other Benefits provided by survey respondents…

"Trees have a long life span and provide a sense of history and stability in a rapidly changing world."
"Screening of unsightly structures, privacy, sound reduction, softening the urban landscape."
"Recreation- ability of children to climb them."
"Free source of compost!"
"Provide a sense of pedestrian scale to slow down cars on streets and buffer sidewalk from street."

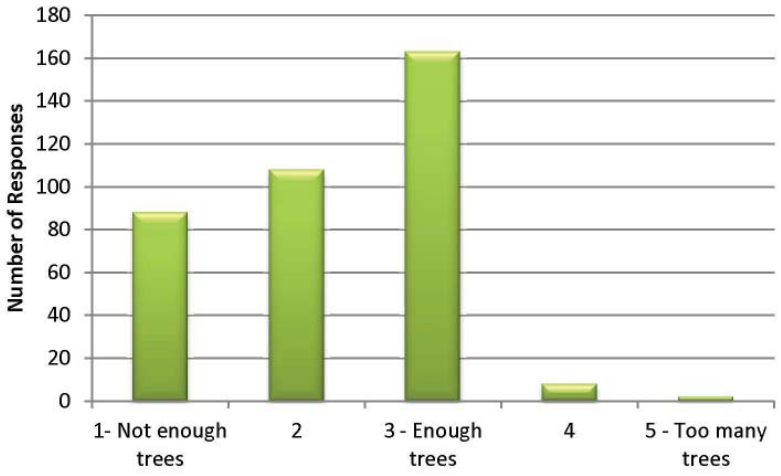
PUBLIC TREES – AMOUNT AND CONDITION

While the urban forest includes all trees within the city limits, public trees are those planted along streets and in parks that are managed by city forestry staff.

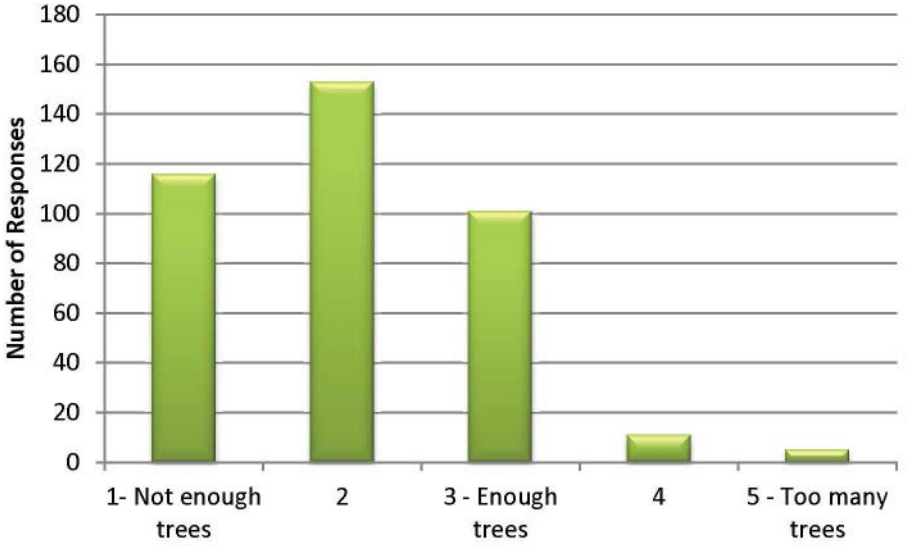
8. How important to you is improving the overall quality of public trees (for example the number and condition of trees) throughout the city? (Rank: 1- Not Important to 5- Very Important)



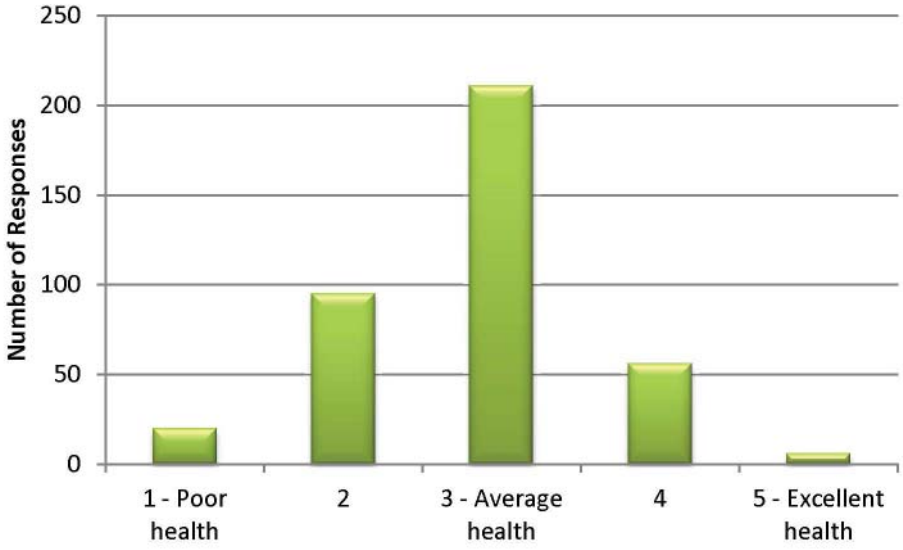
9. Across the city, do you feel there are too few or too many public trees? (Rank: 1- Not Enough Trees to 5- Too Many Trees)



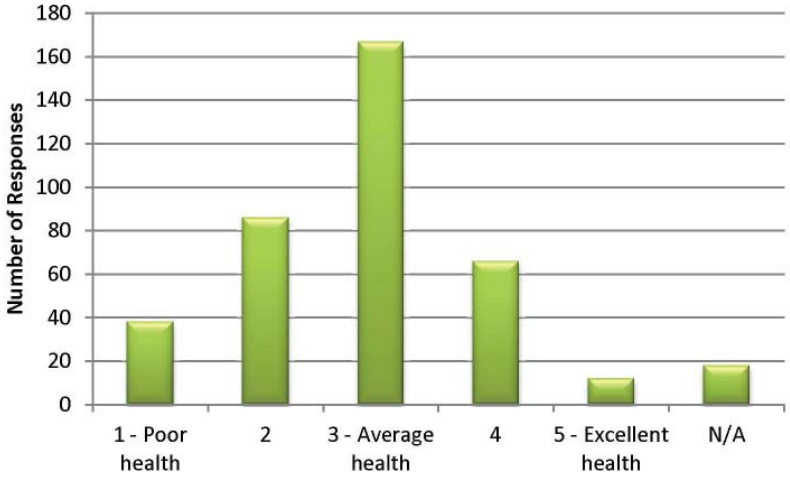
10. In your neighborhood, do you feel there are too few or too many public trees? (Rank: 1- Not Enough Trees to 5- Too Many Trees)



11. Across the city, how do you perceive the condition or health of public trees? (Rank: 1- Poor Health to 5 Excellent Health)



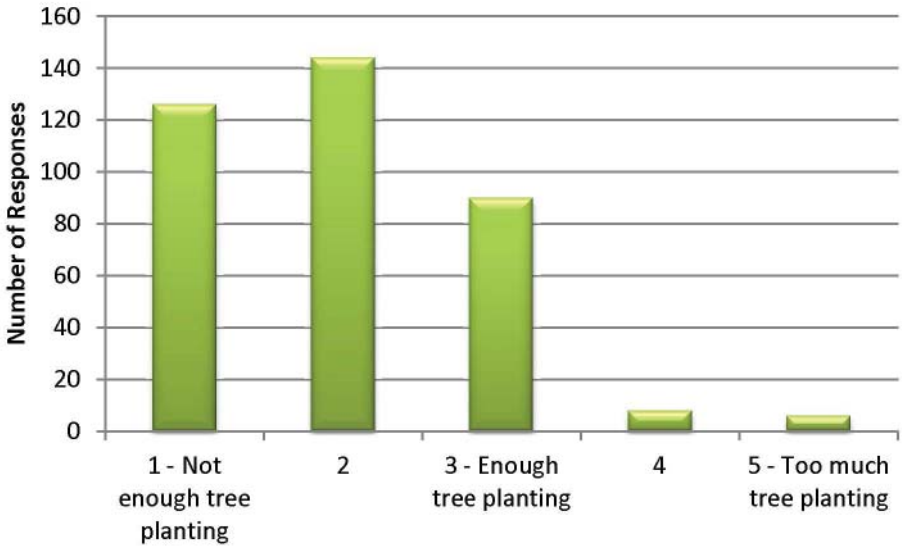
12. In your neighborhood, how to you perceive the condition or health of public trees? (Rank: 1- Poor Health to 5 Excellent Health)



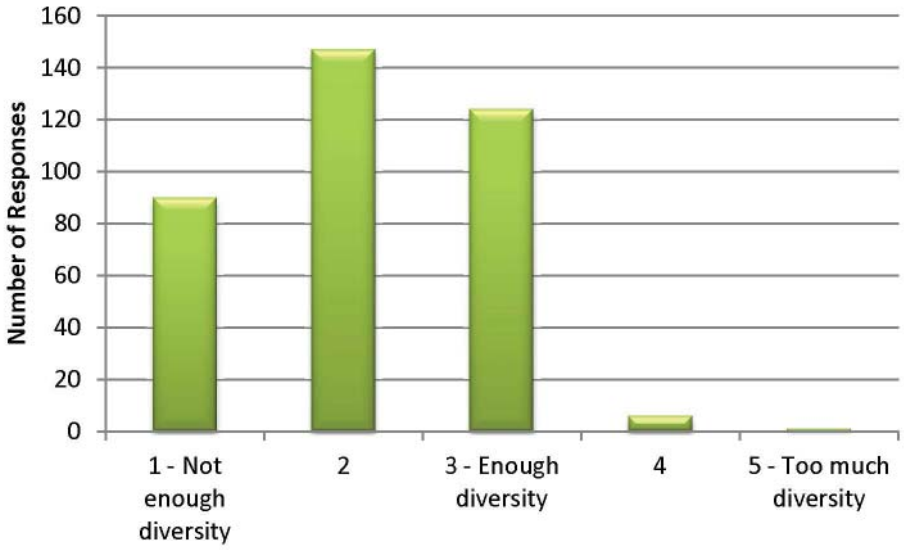
PUBLIC TREE PLANTING

While the urban forest includes all trees within the city limits, public trees are those planted along streets and in parks that are managed by city forestry staff.

13. Overall, do you feel the city is planting enough public trees? (Rank 1: Not Enough Tree Planting to 5 Too much Tree Planting)



14. Do you feel there are enough different species (diversity) of public trees being planted? (Rank 1: Not Enough Diversity to 5 Too Much Diversity)



15. What considerations related to public tree planting are MOST important to you for the Urban Forest Management Plan to address? (Check all that apply).

SURVEY RESULTS

- **79% Care of trees after planting**
- **71% Species of trees being planted**
- **61% Number of trees being planted**
- **53% Location of trees being planted relative to utilities.**
- **48% Location of trees being planted relative to site**
- **47% Funding for tree planting**
- **43% Partnerships for tree planting**
- **39% City staff resources to conduct or oversee tree planting**
- **36% Prioritization for tree planting across the city**
- **32% Public education and outreach**
- **29% Size of trees being planted**
- **3% Other**

16. **Are there other issues or opportunities related to public tree planting that you feel the Urban Forest Management Plan should address? Other Issues provided by survey respondents:**

"Care of the existing trees- not just after planting- throughout life"

"Sustainable, able to produce food for people…"

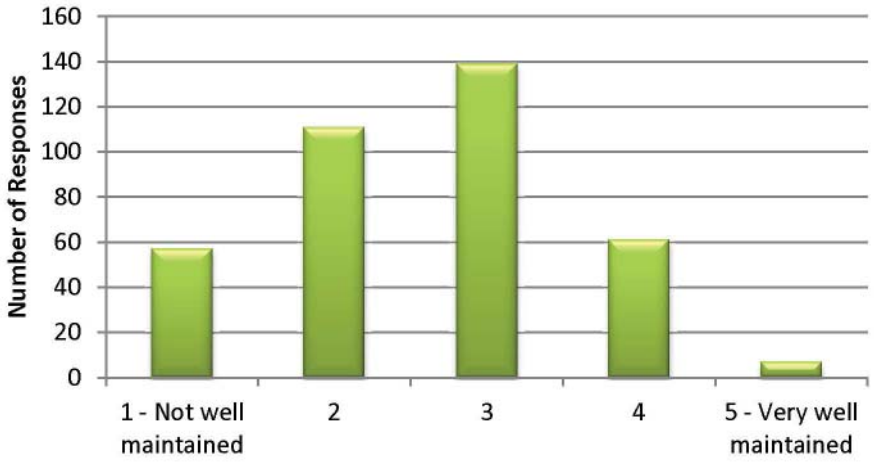
"Location of trees being planted to provide shade for pedestrians, pavement, rooftops, etc."

"Large shade trees are Ann Arbor's trade mark; let's continue to plant the large tree species."

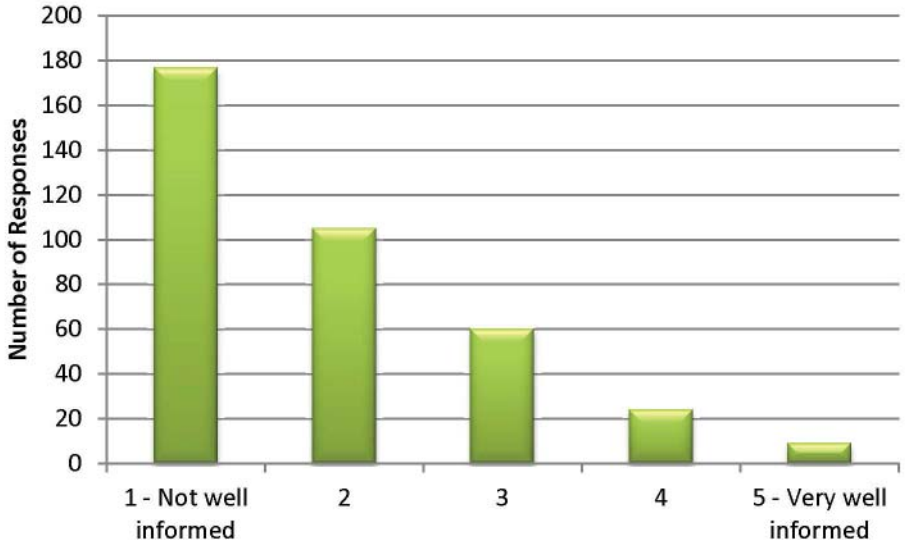
PUBLIC TREE MAINTENANCE + REMOVAL

While the urban forest includes all trees within the city limits, public trees are those planted along streets and in parks that are managed by city forestry staff.

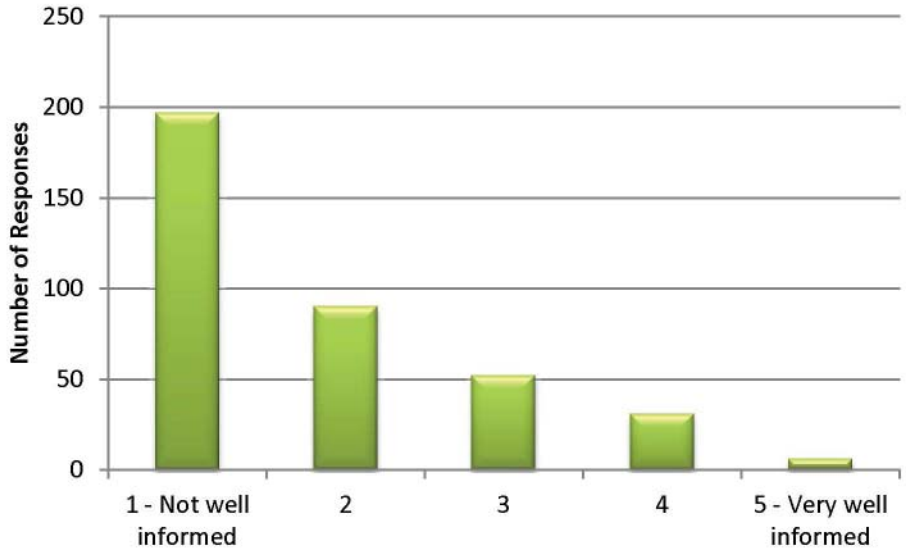
17.Overall, how well do you feel public trees are managed and maintained across the city? (Rank: 1- Not well maintained to 5- Very well maintained)



18. How well do you feel you are INFORMED about public tree MAINTENANCE practices or activities? (Rank: 1- Not well informed to 5- Very well informed)



19. How well do you feel you are INFORMED about public tree REMOVAL practices or activities? (Rank: 1- Not well informed to 5- Very well informed)



20. What considerations related to public tree maintenance and removal are MOST important to you for the Urban Forest Management Plan to address?

SURVEY RESULTS

- **80% Pruning for tree health**
- **59% Pruning for visibility and sight clearance**
- **52% Engage neighborhood in decision making/planning**
- **48% Pruning for utility clearance**
- **48% The decision process for determining tree removals**
- **46% Funding sources for tree maintenance and removals**
- **41% Approaches for assessing tree condition and health**
- **40% Staff resources for tree maintenance and removal**
- **39% conflicts between trees and sidewalks**
- **33% Involving volunteers in tree maintenance and removals**
- **33% Public outreach and education**
- **21% Mowing and grounds maintenance around trees**
- **21% Other**
- **15% Pruning for road work or other construction activities**

21. **Are there other issues or opportunities related to public tree maintenance and removal that you feel the Urban Forest Management Plan should address?**

- "Make new tree planting a non-priority and care of existing trees a moderately high priority."
- "Damage to sidewalks and residential sewer pipes is expensive for the homeowner."
- "Get the word out about the website and encourage people to go there for information. Many people seem to believe they can't find out what local gov't is doing and yet the information is readily available.
- "While I like the idea of more public involvement/ownership in public tree maintenance decisions. I don't think it's practical for most people to be involved."
- "How can the public help with planting and maintenance?"

PRIVATE TREE CONSIDERATIONS

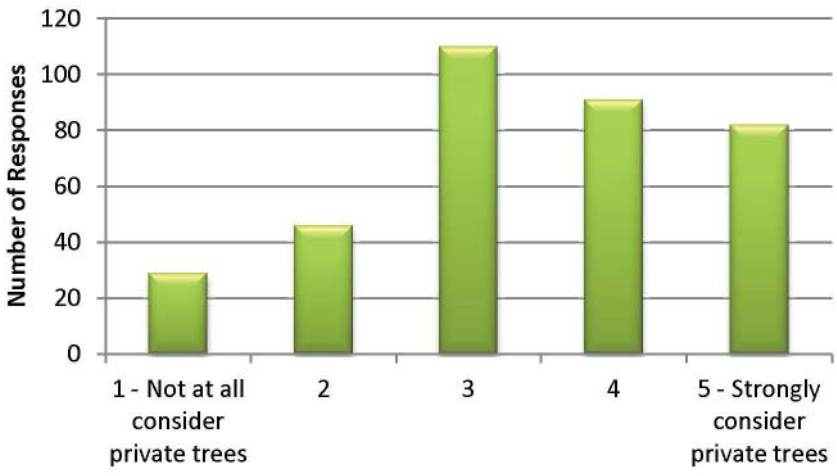
For this survey, private trees are all the trees that are not on city-owned land. This includes private residences, commercial properties, institutional lands, etc.

22. What ways of encouraging tree planting and maintenance on private property would you support? (Check all that apply.)

SURVEY RESULTS

- **75% Education to encourage people to buy and plant trees**
- **69% Incentive programs to encourage tree planting on private property**
- **66% City ordinance changes that require more tree planting**
- **54% Work with volunteers to plant trees**
- **53% Partnerships with other organizations**
- **21% Other Ideas, included:**
  - "Enforce landmark tree ordinance on private land."
  - "Keep out of private lands."
  - "Trees instead of high maintenance plants (i.e., turf grass)."
  - "Educate about undesirable and invasive trees."
  - "Don't waste time and money on private trees."
  - "Engage schools in this process"

23. How strongly do you feel the Urban Forest Management Plan should explore or consider strategies that relate to trees on private land as well as on public land? (Rank: 1- Should not at all consider private trees to 5- Strongly consider private trees).

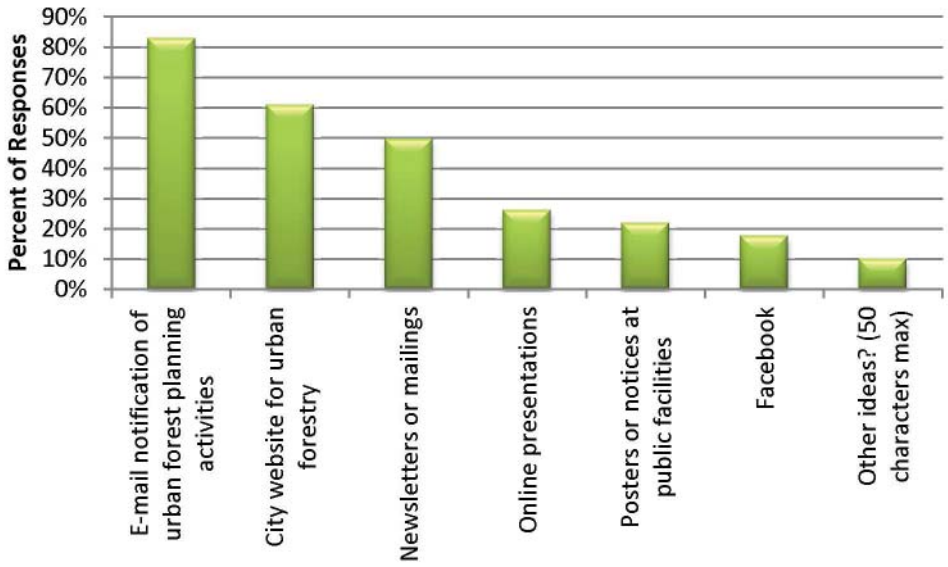


24. For the Urban Forest Management Plan process, in what public engagement methods would you participate? (Check all that apply)

SURVEY RESULTS

- **74% Additional Surveys**
- **70% Neighborhood Scale meetings**
- **36% Focus Groups**
- **35% Interviews**
- **26% City-wide public meetings**
- **25% Stakeholder/advisory group**
- **9% Other Ideas, included**
  - "On-line information, flyers, newspaper articles."
  - **"**Social media"
  - "Neighborhood email lists"

25. For the Urban Forest Management Plan process, what public outreach or communication methods would you use to stay informed? (check all that apply)



26. **What groups or individuals, if any, do you feel should be represented on a stakeholder group during the development of the Urban Forest Management Plan?**

SURVEY RESULTS

- Neighborhood groups, Landlords, Businesses, Other local agencies, Watershed Council, University of Michigan, Local Arborists, Greenway Group, Ann Arbor Public Schools, Biking Coalition, Audubon Society, Sierra Club, Realtors, Chamber of Commerce

Appendix C5
Stakeholder Focus Group #1- Summary
Issues & Opportunities to Improve
Ann Arbor's Urban and Community Forests

Five Stakeholder Focus Group Sessions were held in February 2011 with the following groups:

- Boards/Business Organizations/Private Companies/Commercial Neighborhoods
- Public Agencies and Organizations
- Non-Profit Organizations/Environmental Organizations
- Residential Groups
- City Advisory Commissions

COMMON THEMES

The summary below provides the common themes and ideas that emerged from the Stakeholder Focus Group Sessions. It is organized in descending order by approximate number of references to each topic. Comments in quotations were taken from meeting notes; they were not directly transcribed from the focus group meetings.

Public Education/Communication/Transparency about Forestry activities (trimming, removals, tree planting, UFMP development, etc.)

- "People don't know what the plan is, what their options are. There is a need for education about public tree planting."
- "Provide maintenance education to people (watering, mulching…)."
- "I think that many residents feel like the City touches a street or park tree 2 times, once when planted and once when they are removed…It comes down to communicating more with people whether that is through the web or other."

Tree Selection- Diversity, using natives, right tree/right place

- "Be smart about what to plant where, on a case by case basis (don't put fast growing trees under utility wires)."
- "Consider ecologically appropriate native species when planting. Carefully consider diversity."

Routine Tree Maintenance and Young Tree Care

- "If you can't maintain, don't plant."
- "We need better care for the trees that we already do have. New trees take a lot to make them grow."

Volunteers

- "We need an organized approach to community members taking on tree maintenance."

DTE- utility line clearance

- "Need better management when DTE comes through. They damage trees."

Preservation of historic/landmark trees on public and private property

- "At some point (size/ age? other?) historic trees should be protected just like historic homes."

Budget

- "Projects costs and funding sources are potential barriers to plan implementation."

Consideration for competing interests

- "Defining areas where trees should be preserved vs. areas for construction."
- "Decision to not have a tree by one homeowner may conflict with interests of others in the neighborhood (solar access, ability to grow edible plants in their yard…)."

Partnerships with non-profit organizations

- "…advocates for particular issues."
- "…recruiting volunteers."
- "…could provide maintenance support."

Incentives for/assistance with private tree planting

- "Incentives to push people to the goals. If you want people to plant trees to increase canopy cover, maybe give a discount on trees, or provide volunteers to help with private maintenance."

Long range planning

- "What can we do now? What in the future? Long range planning… (Action strategies with different phasing)."
- "People need to think about the whole tree life cycle. The beginning and the end of tree life."

Wood utilization

- "'End of life planning' for trees."

Invasive species management

- "Loss of tree cover from insects, disease. Want "no-net-loss" (right now we're losing more public trees than we're gaining, we need to reverse that)."

Leaf pick up and City trees

- "Without leaf removal, the leaves from the City's trees are now the responsibility of citizens. What are the rights and obligations of the private owners with respect to trees in the right-of-way?"

Trees as a food source

UNIQUE QUOTES

Sentiment towards trees

- "Trees are like comfort food" … "like mac and cheese or something"

Large trees vs. Small trees

- "The quantified value of large trees is something like 5x the value of small trees"

Ownership and responsibility

- "Could the City give people a choice about what tree is planted? When people are given a choice of trees they may be more likely to take ownership."

Shrub planting

- "Forest is more than the trees; could consider shrubs as part of the urban forest. There may be a lot of opportunity for native shrub planting."

Appendix C6
Common Themes Chart

NOTES (1) Themes are listed in descending order by number of references as determined by searching for specified keywords (from Public Workshops, Survey and Focus Group notes) (2) Focus Group and Public workshop quotations have been taken from meeting notes; they were not directly transcribed. Survey responses and Advisory Committee quotes are direct but have been edited for spelling, grammar, etc.

	Key Quotes				Total References
Theme	**Advisory Committee**	**Public Workshop**	**Survey**	**Focus Group**	**Keywords**
1. Tree Selection & Planting- Diversity, using natives, right tree/right place	Manage for diversity and age of trees Improve diversity of trees Emphasize natives trees in public and private spaces Dilemma of natives Tree planting/ care in city core	"Need to increase species/diversity" "Age class relative to site"	"There should be attention given to the types of trees planted on lawn extensions to minimize the upheaval of sidewalks and height of mature trees to avoid power lines." "A big variety of species is very important--look at the 10,000 dead ash trees."	"Be smart about what to plant where, on a case by case basis (don't put fast growing trees under utility wires)." "Consider ecologically appropriate native species when planting. Carefully consider diversity."	Tree planting, Species, Native, Diversity, Canopy, Appropriate, Right tree, Right place, Right site
					233
2. Budget/ funding / lack of sufficient resources	Public education needed to put budget issues in context Restoration funding in wake of EAB Community partnerships	"Political issues – need to advocate for trees' place in the city budget" "Pursue grant opportunities/ seek alternative funding sources" "Allow homeowners to help pay for maintenance directly"	"Individuals could be encouraged to sponsor trees, as there's obviously not enough $$ for everything." "The city should prioritize funds based on overall city needs and infrastructure. Items like road work/repair and public safety should receive priority over 'lifestyle enhancements' or 'wants'." "As long as it does not increase the city budget in ANY WAY I am in favor of an urban forest planning process. I do not believe that one single taxpayer dollar should be spent on this special interest agenda item."	"Projects costs and funding sources are potential barriers to plan implementation."	Fund(s/ing), Resource, Pay, Cost, Money, Budget
					194
3. Routine Tree Maintenance and Young Tree Care	Mission - preserve what we have! Convey city policies/expectations Contiguous management between public/private Track tree health	"Plant trees that require less maintenance" "Safety issues with trees that are not maintained properly"	"Care of the existing trees-not just after planting-throughout life" "...The city is doing a poor job of taking care of trees already under its care and should be cautious about trying to plant more when it can't care for what it already has"	"If you can't maintain, don't plant." "We need better care for the trees that we already do have. New trees take a lot to make them grow."	Maintenance, Care, Maintain, Routine
					187
4. Public Education/ Communication/ Transparency about Forestry activities (trimming, removals, tree planting, UFMP development, etc.)	Build stronger connection / buy in for urban forest Identify a process to better educate the public Need to discuss values and benefits of trees Use a variety of media to communicate Education is multi-level Clearly convey city policies Develop a "report card" for tracking accomplishments Highlight awards and recognition for urban forest efforts	"Need to discuss with residents why a tree is slated for removal" "Educate residents about maintenance practices + maintenance activities"	"Get the word out about the website and encourage people to go there for information. Many people seem to believe they can't find out what local government is doing, and yet the information is readily available." "Coordination, clarity, consistency, transparency... I had several confusing/ contradictory interactions with city foresters last year..." "The city needs to do a better job of informing residential property owners of their obligations and rights with respect to the city-owned trees located along the street in sidewalk easements. As far as I can tell, the city expects residential owners to maintain and care for these trees, yet restricts use..."	"People don't know what the plan is, what their options are. There is a need for education about public tree planting." "I think that many residents feel like the City touches a street or park tree 2 times, once when planted and once when they are removed...It comes down to communicating more with people whether that is through the web or other."	Public, Educat (e/ion), Information, Communication, Outreach, Knowledge, Transparency
					169
5. DTE- utility line clearance/Pruning Practices	Identify ways to resolve conflicts with utilities Greater oversight of contractor/utility practices What can DTE do to help? Establish a framework for partnerships with measureable goals. Streamline process for private involvement with city trees	"Conflict between utility pruning + community goals – need better pruning practices"	"Many trees have been butchered by pruning to accommodate overheard power lines. Long range planning should consider relocating power lines underground" "...Utility companies are allowed far too much authority in tree trimming around electrical lines. I'm in favor of trees having priority over cutting the costs of electric line maintenance. I can live without electricity occasionally to save our trees..."	"Need better management when DTE comes through. They damage trees."	Trim, Utilit (y/ies), Prun (e/ing), DTE, Wire, Underground, Electric
					154
6. Incentives for/assistance with private tree planting	Stormwater credit to incentive private tree planting	"Avoid forcing individuals/private home owners to plant, use incentives"	"Discount tree sale" "Stormwater credit for trees planted" "Loan tree planting tools & equipment" "Gah!! Keep out of private land." "Don't waste time & $ on private trees."	"Incentives to push people to the goals. If you want people to plant trees to increase canopy cover, maybe give a discount on trees, or provide volunteers to help with private maintenance."	Private, Incentive, Credit, Discount, Assist
					75

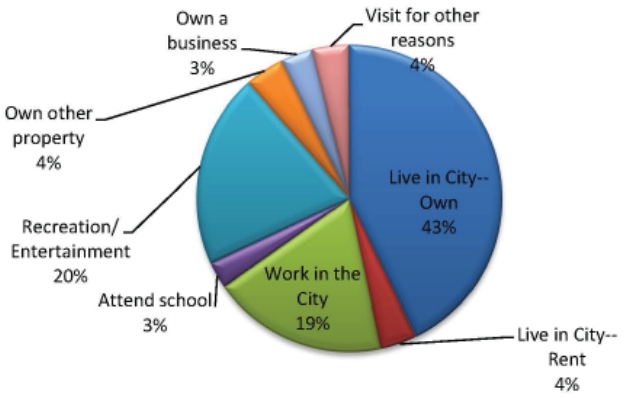
Common Themes Chart (Cont.)

	Key Quotes				Total References
Theme	Advisory Committee	Public Workshop	Survey	Focus Group	Keywords
7. Volunteers	Train and promote resident engagement with pruning and watering	"Develop a stronger volunteer network. Work with volunteers and "stewards" to aid in planting and planning efforts"	"Should encourage and facilitate formation of neighborhood groups to plan & plant trees - they are interested, motivated, and willing, and their encouragement could ease the burden on the city"	"We need an organized approach to community members taking on tree maintenance."	Volunteer, Steward, Involvement
	Teach workshops through local groups, churches, etc.		"I pay enough city/property taxes that volunteers should not be relied on to perform fundamental city services. If we are the tree city then be the tree city through fiscal management. Volunteers are valued but not relied on."		
	Consider permanent urban forest committee				
	Advocate a call for action! Tree campaign kickoff!				
					59
8. Tree and Sidewalk issues	Have policies so trees don't get trumped by other issues	"Sidewalk replacement – cost of tree versus cost of sidewalk"	"Damage to sidewalks and residential sewer pipes is expensive for the homeowner."	"Maintenance of trees as they affect walkers on sidewalks. Pruning is needed where tree branches are lower than 6 feet above sidewalks..."	Sidewalk
	Manage for tree health		"Look into rubber sidewalks? Apparently, they can be pulled up, tree roots trimmed, and sidewalk piece replaced."		
					57
9. Ordinances/Requirements	Set enforceable standards	"Set standards that will endure beyond political leadership and personnel changes"	"Enforce maintenance & replacement of trees required by site plans."	"That there be a tree ordinance, not a policy—and that this ordinance be enforced by a board of stakeholders."	Require, Ordinance, Standard, Enforce (ment)
		"Not enough enforcement of current codes (i.e. planting/landscaping ordinance)"	"Pass city ordinances which require all the commercial real estate which have acres of open grass space to have them filed with trees."		
					53
10. Wood utilization	--No supporting quote--	"Urban wood re-use / harvesting is an important benefit of trees"	"High-value recycling/use of wood from trees after removal"	"'End of life planning' for trees."	Wood, Utiliz (e/ation), Recycl (e/ing)
			"Wood recycling and reuse program"		
					47
11. Trees as a food source	Regularly harvested by food gatherers and others	"Tress are a food source for people (fruits + nuts). 'Food Forest.' Urban forest gardening."	"More fruit and nut trees please."	"We need a greater emphasis on the brush species that will provide food resources within our parks."	Food, Fruit, Nut, Sap, Syrup
			"Trees can have a larger role... We need to encourage collection of fruit and nuts, and allow trained people to tap trees for maple sap. This also encourages caring and a sense of ownership."		
					45
12. Balancing priorities/ competing interests	Coordination between departments/divisions	"Consideration of solar and wind installations/balance plantings"	"How will the urban forest plan interface with other surrounding issues and plans? For example, urban forests, bike paths, open space, and the built environment in general are all related and should be considered simultaneously in the development of any plan. What steps will be taken to assure that all relevant issues beyond the scope of urban forests will be taken into account?"	"Defining areas where trees should be preserved vs. areas for construction."	Priority (y/ies/ize), Conflict, Balance, Interface
	Coordinate trees with wind/solar/wind issues	"Manage conflicts between tree planting and other city plans/initiatives"		"Decision to not have a tree by one homeowner may conflict with interests of others in the neighborhood (solar access, ability to grow edible plants in their yard...)."	
					41
13. Preservation of historic/landmark trees on public and private property	--No supporting quote--	"Other municipalities (i.e. Carmel, CA) don't allow trees to be cut down on private property without just cause"	"...Consider the age of trees when contemplating removal. Old trees are a city treasure"	"At some point (size/ age? other?) historic trees should be protected just like historic homes."	Preserve (e/ation), Historic, Landmark
					37
14. Invasive species management	--No supporting quote--	"Need better assessment/considerations for invasive trees."	"Public trees that are invasive species should be methodically replaced regardless of tree health and landowner objection..."	"Loss of tree cover from insects, disease. Want "no-net-loss" (right now we're losing more public trees than we're gaining, we need to reverse that)."	Invasive, Disease, Insect
					32
15. Partnerships with non-profit organizations and other agencies/institutions	--No supporting quote--	"Forge better relationships with partners (U of M, DDA, MDOT). Have written agreements"	"Perhaps linking with an AmeriCorps, City Year, or Youth Volunteer Corps (YMCA) program will help get young volunteers interested in the environment."	"...advocates for particular issues."	Partner, Relationship, Nonprofit/ Non profit
			"Involve the public schools and community service groups in a similar fashion to 'adopt a highway'."	"...recruiting volunteers."	
				"...could provide maintenance support."	
					30
16. Leaf pick up and City trees	--No supporting quote--	"Leaves clog gutters"	"Definitely consider how the citizens are going to pick up all the leaves in the city since the city has discontinued street leaf pickup."	"Without leaf removal, the leaves from the City's trees are now the responsibility of citizens. What are the rights and obligations of the private owners with respect to trees in the right-of-way?"	Leaves, Leaf
					23
17. Long range planning	Merge / consider alongside PROS, Allen Creek Greenway, others	--No supporting quote--	"Protect the Trees, especially the mature Trees!! Roads, sidewalks, even utility wires/infrastructure, are much cheaper to replace over the long term! Look at the long term benefit rather than the short term cost."	"What can we do now? What in the future? Long range planning... (Action strategies with different phasing)."	Long term, Future, Long range, Life cycle
				"People need to think about the whole tree life cycle. The beginning and the end of tree life."	
					21

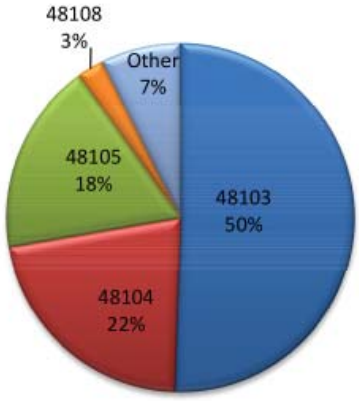
Appendix C7
Summary of Public Workshop #3 (October 2012) And Public Survey #2 (November 2012) Draft Recommendations Feedback Survey

Survey #2 was an on-line survey available through Survey Monkey. The survey was open from September- November 2012 with 205 starting the survey and 138 people completing the full survey. Participants in the October 2012 public workshop also completed the survey and their results were complied with the on-line survey results. A summary of the survey results are provided below.

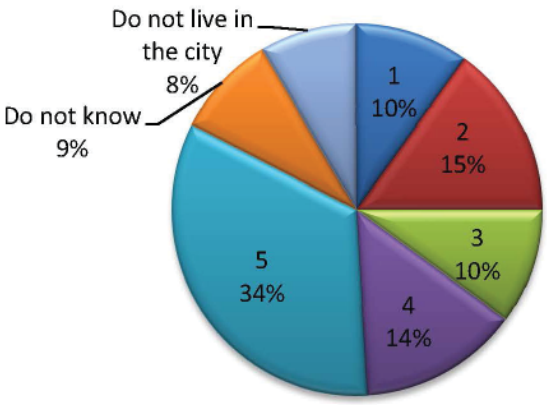
1. What draws you to Ann Arbor?



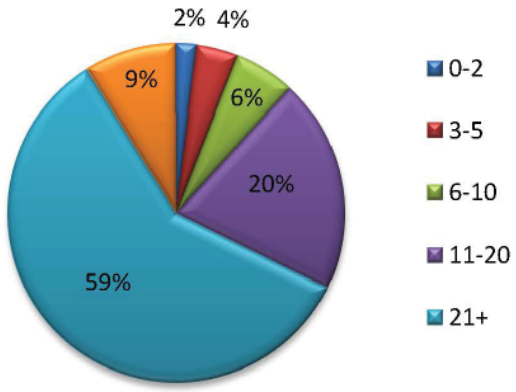
2. What is your Zip Code?



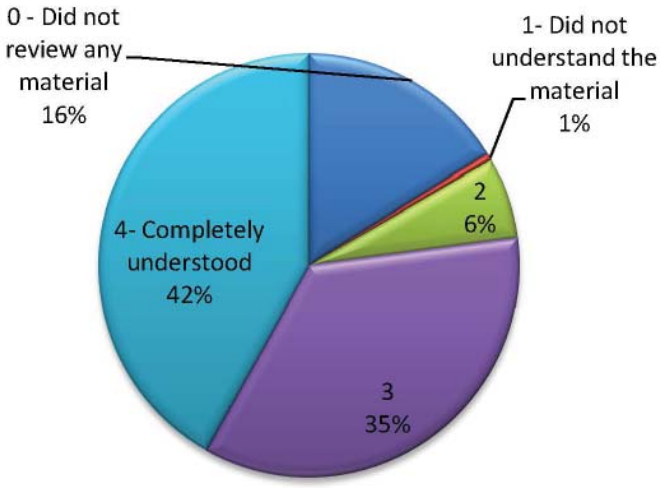
3. Which Ward do you live in?



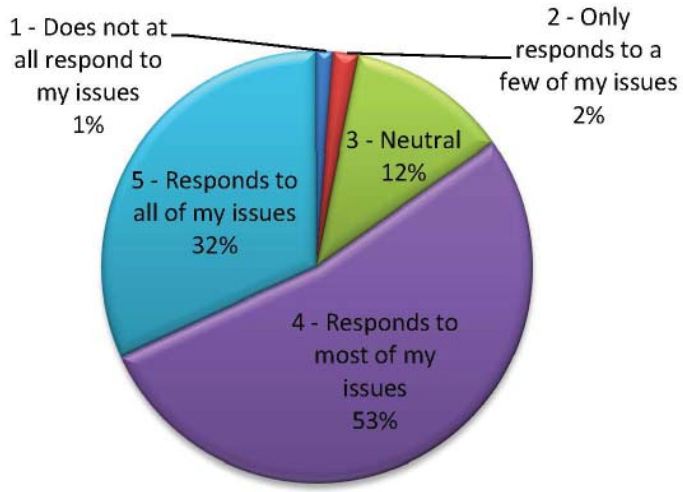
4. If you live in Ann Arbor, how many years have you lived here?



5. Please rate how well you feel you understood the background material.



6. Overall, how well do you feel the plan goals respond to issues that are important to you?



7. Are there issues that you feel the goals do not address?

SURVEY RESULTS. Not all comments are listed; comments are representative

- DTE and trimming for overhead utilities
- Improving soil quality and quantity
- Ensure adequate funding
- "Rephrase Goal 5 to acknowledge need for all stakeholders/interested parties are involved in productive communication"
- Use native species
- Promote right tree, right place
- More focus on care and maintenance of existing canopy
- Goals do not address trees contribution to city's beauty and overall aesthetic appeal
- Importance of education
- Avoid jargon- what do "ecological functions" and "amenity uses" mean – spell it out.

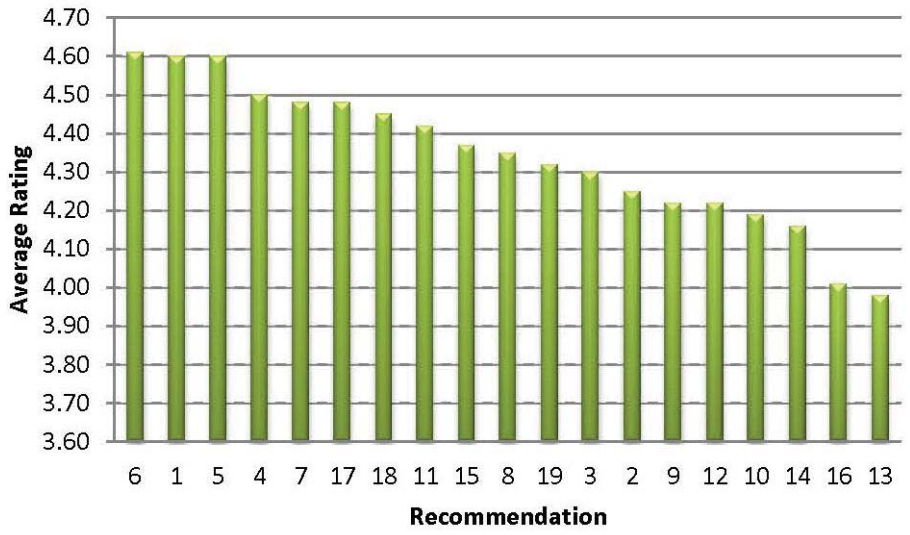
Questions 8-64: For each recommendation the following questions were asked:

- Please rate your overall reaction to this recommendation. Scale: 1- Do Not Like **to** 5-Like
- How important is it to implement the recommendation? Scale: 1-Definitely not important **to** 5- Very Important
- Additional Comments for each Recommendations

Below are the 19 Recommendations that respondents were to provide feedback on.

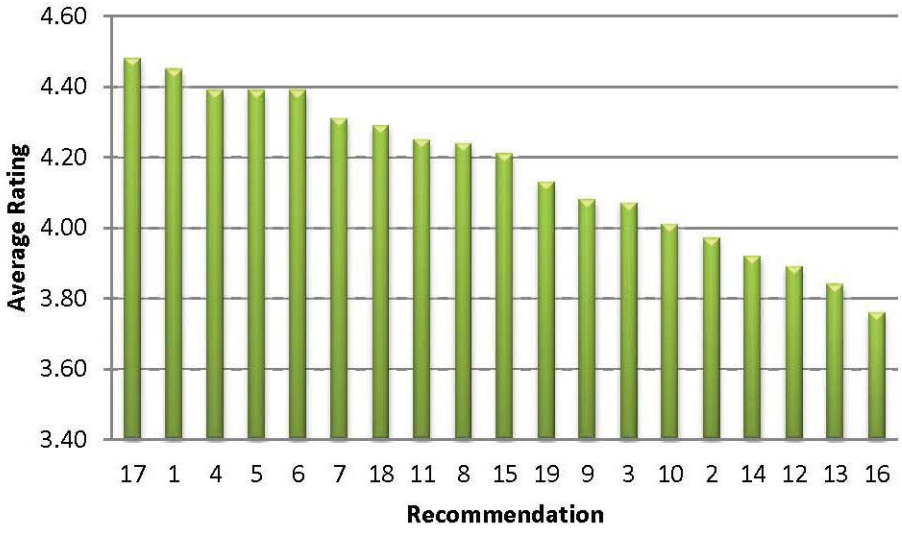
NOTE: *The Recommendations were renumbered, from the ones listed below, following public input received during this survey, the public meeting and Advisory Committee and Working Group meetings. The plan contains 17 Recommendations, the new numbering is detailed throughout the UCFMP.*

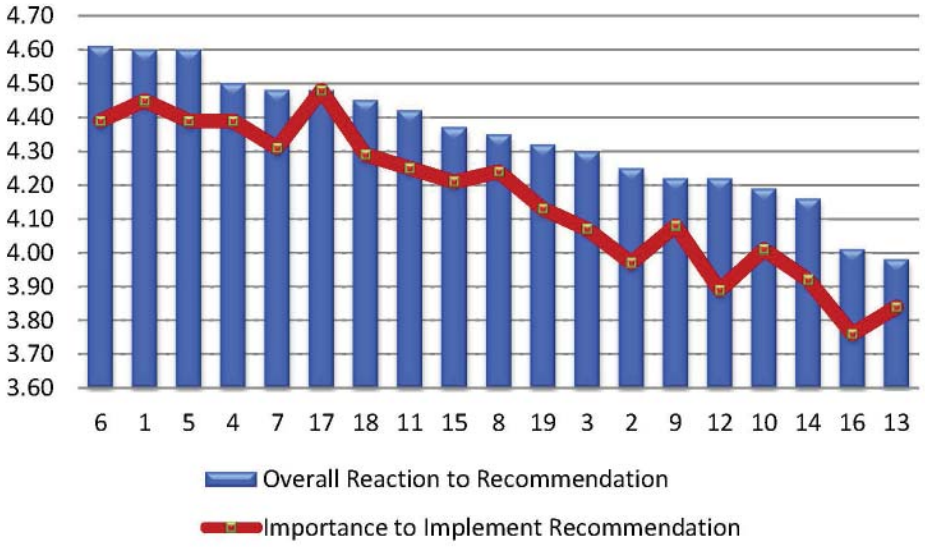
- ❑ **Recommendation 1.** Implement a proactive tree maintenance program for Ann Arbor's publically managed trees emphasizing routine pruning and care to improve the health and sustainability of the canopy.
- ❑ **Recommendation 2.** Establish geographic urban forest management areas across the city to provide systematic service delivery.
- ❑ **Recommendation 3.** Expand on existing practices and programs to update the tree inventory and urban tree canopy analysis.
- ❑ **Recommendation 4.** Develop and implement a comprehensive program to monitor and address threats to the urban forest.
- ❑ **Recommendation 5.** Strengthen tree planting and young tree maintenance programs for both public and private trees.
- ❑ **Recommendation 6**. Develop street tree planting master plans that balance tree functions, diversity and neighborhood character.
- ❑ **Recommendation 7.** Increase the preservation and protection of landmark/special trees on public and private lands.
- ❑ **Recommendation 8**. Strengthen and refine city ordinances to support the implementation of the Urban and Community Forest Management Plan.
- ❑ **Recommendation 9**. Develop, communicate and follow an urban forest best management practices manual for use by city staff, partners, other entities, and the community.
- ❑ **Recommendation10.** Create city staff working groups to coordinate activities and projects that impact the urban forest within and amongst city units.
- ❑ **Recommendation 11.** Strengthen working relationships and partnerships with businesses, organizations and contractors whose activities impact city trees by instituting regular dialogue and project coordination.
- ❑ **Recommendation 12.** Obtain the highest and best use of wood from trees removed by the City.
- ❑ **Recommendation 13.** Review Urban and Community Forest Management Plan annually and update as needed.
- ❑ **Recommendation 14**. Implement an outreach program to inform and educate residents about the urban forest, forestry operations and ways to support the implementation of the Urban and Community Forest Management Plan.
- ❑ **Recommendation 15**. Enhance and develop programs that encourage active participation by volunteers in the development and promotion of a sustainable urban forest.
- ❑ **Recommendation 16.** Engage the Environmental Commission in urban and community forestry management.
- ❑ **Recommendation 17**. Secure adequate and sustainable city-generated funding to support an increased level of service for core urban forestry operations and programs.
- ❑ **Recommendation 18.** Obtain federal, state, and other grant and loan funding awards to support special urban forest initiatives and projects.
- ❑ **Recommendation 19.** Develop and implement a philanthropic funding program to support additional forestry services and programs beyond the core level of service.



Overall reaction to each recommendation
(All Respondents)
Scale: 1- Do Not Like to 5- Like

Importance to implement recommendation
(All Respondents)
Scale: 1- Definitely Not Important
to 5- Very Important





Overall Reaction to Recommendation vs.
Importance to Implement Recommendation

COMMENTS ON THE RECOMMENDATIONS- NOT ALL COMMENTS ARE LISTED; COMMENTS ARE REPRESENTATIVE.

Recommendation 1:

- 7 Year pruning cycle too long (6)
- Like concept of immediate tree replacement after removal (4)
- How can this be funded (3)
- Need standards, unhappy with utility line clearance (3)
- Increase trained, professional Forestry Staff (2)

Recommendation 2:

- Need to define geographic area better/better reader friendly language/jargon (6)
- Have not justified need for management areas (1)
- Actively seek citizen input (1)

Recommendation 3:

- Limited resources- spend money on care not on counting (2)
- Can this be done with routine maintenance (3)
- Use volunteers and residents (2)
- Keeping track is key to achieving all the other goals

Recommendation 4:

- Need sufficient qualified and trained forestry staff to do this (3)
- I don't believe in climate change
- What about threat by development?
- Add communication component to action tasks to share status of program
- Would like action task to include the identification and removal of invasive species in parks and natural areas**.**

Recommendation 5:

- Education on a variety of topics (watering, mulch) (5)
- Focus on maintenance first and then planting (5)
- Do not support incentives (3)
- Don't rely on partnerships (2)
- Would like clear statement about not using toxic chemicals (1)
- Require planting of trees in parking lots (1)

Recommendation 6:

- Use Native Species (5)
- Do not spend money on consultant fees to do this (3)
- Safety should also be a consideration (1)
- Avoid planting trees that attract squirrels &wildlife (1)
- Is this really necessary? (1)
- Develop a culture that supports trees (1)
- What is meant by "neighborhood character?" Wealthy elite vs. low income? (1)
- Can this recommendation work to enhance/optimize the growing environment of trees? Including soil quality, soil quantity and overhead utilities. (1)

Recommendation 7:

- Incentives, awards, recognition (carrots) needed (4)
- Tell the story of landmark big trees. Education. Big Tree registry, tree trail map, etc. (3)
- Private trees are private. Can the city mandate tree preservation on private property? Omit private property (4)
- Don't spend city dollars on this or private property trees (3)

Recommendation 8:

- Education and enforcement should be included

- UCFMP should not create ordinances that interfere with residents plans to install solar/wind/alt energy devises
- People who put solar panels where trees are should have no recourse if the tree was already there.
- Prefer education and voluntary compliance over ordinances (3)
- Holds us accountable to what we say we want
- Alternative vegetation types should be encouraged

Recommendation 9:
- Benchmark BMPs – city should not reinvent the wheel
- Coordinate with other city units (2)
- BMP for soil quality and enhancement important (2)
- Coordinate with "Orange Book"(1)

Recommendation 10:
- Do City staff have time?
- Imperative- it hurts credibility when one unit of the city does not know what another is doing.
- Cross-unit communication is very important
- Only if there are clear, concise policies (ordinances) to protect and preserve trees/forest will coordination be effective.
- Sounds ok- but I see endless meeting and lots of chat…

Recommendation 11:
- Please address DTEs pruning practices (6)
    - We plant small trees under utility lines - have we acquiesced to DTE?
- Sound policies and practices are key (2)
- Education (1)
- Communicate with public (1)

Recommendation 12:
- Great idea, need to start reusing/recycling ASAP, use wood for furniture (15)
- Don't incentivize tree removal (3)
- Waste of time and resources (2)

Recommendation 13:
- Annual is to frequent (13)
    - Every 3-5 years
- Don't waste time doing this
- Appoint a person to do this, committee are too slow

Recommendation 14:
- Priority should be on maintenance (2)
- A strategy for regular dialogue regarding the UCFMP sounds a bit intense. I think trees are in the background for lots of people, there being more critical issues in their lives. It may be sufficient to create a welcoming portal so that if people have questions or issues it would be easy to get answers.
- Traditional mailings are still needed

Recommendation 15:
- Volunteers should not be relied upon to fill gap of staff (4)
    - Volunteers cannot replace trained, qualified forestry crew (2)
- Create a city nursery utilizing volunteers from schools to manage
- Seriously question sponsorship idea

Recommendation 16:
- Good idea (5)
- We don't need another committee (3)
- Concern Forestry Committee would be buried/lost under the Environmental Commission. Membership, responsibility and authority of Forestry Committee not described here (example: resident appeals about tree concerns)

Recommendation 17:

- Do not support Forestry moving to Stormwater (3)
- Forestry should be back in General Fund (2)
- Very important to have adequate staff and equipment in Forestry
- Forestry Ops is dramatically underfunded
- Forestry should be funded partially out of Street Millage
- No more millages (3)

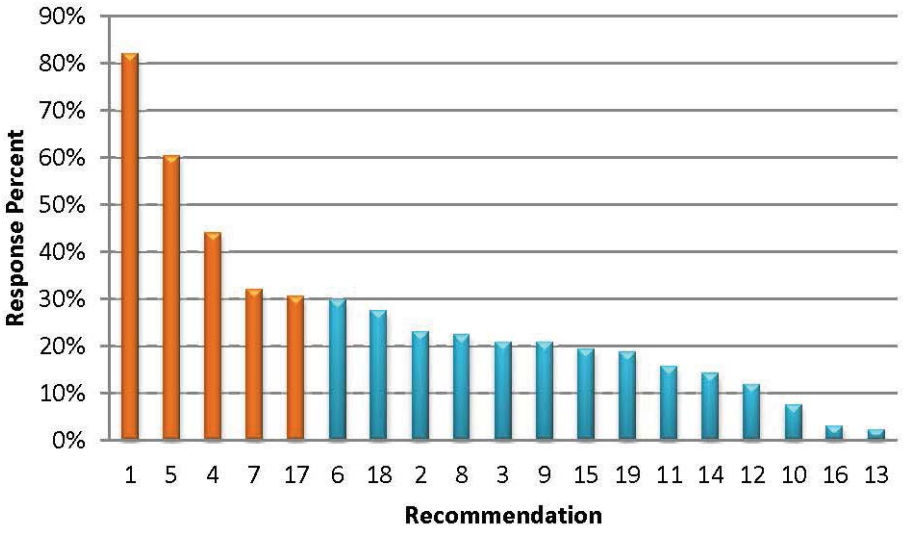
Recommendation 18:

- Is there adequate staff time to do this? (6)
- Recommendation should specify working with the Ann Arbor Community Foundation
- Don't rely on this for routine maintenance and planting

Recommendation 19:

- Concern about taking staff time away from core forest services (4)
- If there is money out there, we should go for it
- Match interests with needs
- Hire intern to do this
- Don't rely on for essential forestry services

65. Please select the top five recommendations that you feel should be a priority for city resources.



Recommendations listed based on priority for City Resources

Note: Recommendation numbering was changed after this survey.

Priority for City Resources versus Overall Reaction to Recommendation

Note: Recommendation numbering was changed after this survey.

66. Do you have other recommendations or ideas that you feel should be included in the plan? If so, please describe.
Not all comments are listed; comments are representative.

- Preference for natives (2)
- Make clear how contractors are needed to replace reduced staff
- Create Friend of the Forest or Friend of Trees category for volunteers. A person qualified in this position would have more authority/responsibility at the local level regarding pruning, removal and planting decisions.
- Make a positive contribution to the solution of global warming
- Rebuilding downtown tree pits to support trees
- Plan should include specific measures to track progress on goals, recommendations and action item
    - Ex: Develop urban forest health indicators as baselines now and be tracked when plan is implemented.
- Develop City Nursery (2)
- Fruit and Nut Trees (2)
- Clear commitment to maintain a toxin-free program
- Clearly state the preference for large shade trees over small ornamentals
- Eliminate proposed programs for private trees (2)
- Educate public on invasive species
- Hazardous trees on private property
- Self-guided tree walk
- 14 &15 could be combined (2)
- 18 & 19 could be combined (2)

67. Do you have other thoughts or reactions about the plan that you would like to share?
Not all comments are listed; comments are representative.

- Thank you, good work, clearly a lot of hard work has gone into this, very comprehensive (17)
- Keep the survey shorter (4)
- Do NOT ask for another millage to fund this
- "Cost effective" was not mentioned in plan
- Process by which the plan was developed was excellent
- Education about watering during drought is needed
- Most important thing is to have expert, well trained, professionals with adequate resources and sufficient authority to take action.
- Do we really need all of these programs? All trees are beautiful. Just get some at a good price and plant them.
- Goals/concepts good. Implementation is a concern. Only 25% of Recommendations actually address maintaining and preserving our City trees. Most of these Recommendations are for administrative/ bureaucratic endeavors. Please focus on the trees! That is, the field work, and the staff needed, for pruning and maintenance. This is where our City funding for Forestry needs to be concentrated!
- Looks good but it is so comprehensive that I shudder at its implementation.
- This plan should be a high priority for tree town.

Appendix C8
Responses From A2 Open City Hall

A2 Open City Hall Question:

The City currently is drafting its first Urban and Community Forest Management Plan. What do you think the top priorities should be?

Three Comments were received:

- "Very elaborate and costly administrative organization for the management of what was well done by City Forestry in the past for much less money. Removal from the General Fund to the Utilities means that dollars for the plan can be increased through the rates - yet another fund raising technique by the City to raise more money without asking voters for a tax increase by offloading it on to the householders.
  I feel very strongly about this as I believe this is one of the "management" initiatives that are going on apace by City administration to increase revenue. Overall there are some good suggestions but none that could not be done with a more forward thinking and creative forestry manager inside existing structure.

  In addition as a fund raiser myself I know that the proposal to raise money from other sources will require at least two positions to track and chase that money-if that ever happens-at time when there is less and less money for these kinds of projects. "

- "Long before the city started this process of drafting a "community forest management plan", we had pretty good management of city trees. Things started to go downhill when the balance between doers and managers started to shift in the city. The best thing to do is to hire more doers--the workers who actually do the care and maintenance of the trees. I don't know what we are going to do with the managers--but it never hurt anyone to spend time outside with trees. :)"

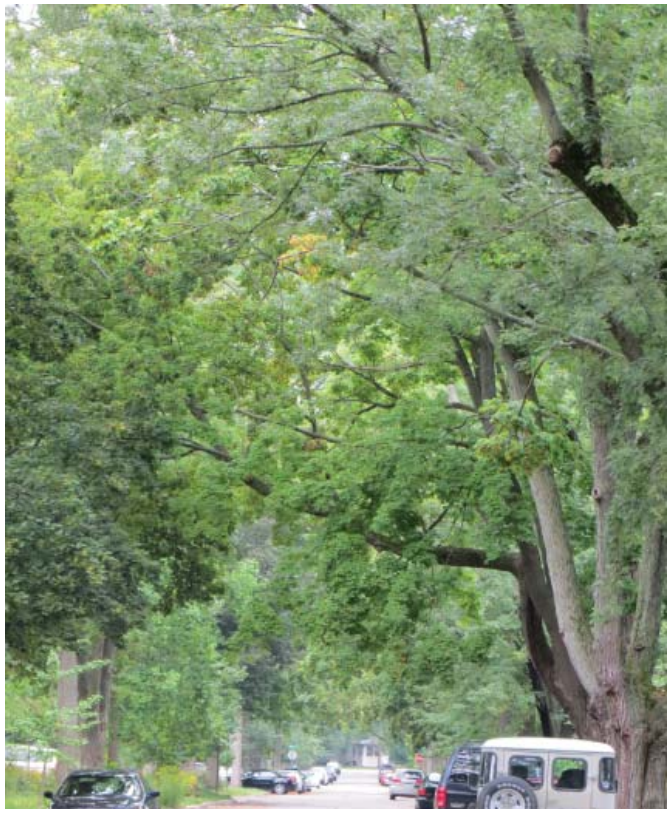
- "I like the first draft. The city needs to have organization in this area and proper attention to the trees and other plantings that have been paid for by the citizens and planted. I see that many young plantings are dying as a result of neglect. This needs to be addressed. Plantings are investments and if not taken care of are simply wasted citizen dollars."

Appendix D
Implementation Options for Recommendation #1
Level Of Service and Costs

Recommendation #1: Implement a proactive tree maintenance program for Ann Arbor's publicly managed trees emphasizing routine pruning, removals and care to improve the health and sustainability of the canopy.

Implementation Scenarios and Costs

The Implentation of Recommendation #1 will require a two-fold approach. The first strategy is to address the backlog in street tree management activities detailed in Chapter 3. Addressing the backlog will have a significant impact on improving the condition of Ann Arbor's city-managed urban and community forest. The second strategy is to implement a routine pruning cycle. Routine pruning programs are more efficient, cost effective and improve the quality, condition and value of the urban and community forest (see Chapter 3 for benefits of a routine pruning program). Scenarios and costs for implementing each strategy are detailed below.



Backlog Elimination Implementation Scenarios & Costs

The scenarios detailed below would eliminate the street tree backlog of tree removals, priority tree trimming and stump removals. The 3 and 5 year scenarios assume that each year delay will add 1% of the existing 43,000 street tree population (or an additional 430 trees per year) into the priority removal and pruning activities listed above. These scenarios assume that a routine pruning cycle is funded to maintain the urban and community forest after the backlog is removed.

The funding required to address the backlog is in ADDITION to Forestry's annual budget. Once the backlog is eliminated a portion of the backlogl funding could be utilized to implement the routine pruning cycle (scenarios detailed on next page).

Scenarios	Total Estimated Number of Street Trees Requiring Action Under Each Scenario				Example
	Trees Removed	Trees Priority Pruned	Stumps Removed*	Total Cost (Millions)	Estimated Stormwater Quarterly rate increase for average single family residential customer**
Remove Backlog in 1 Year	1,412	3,110	2,729	$2.84	$12.45 for 4 Quarters
Remove Backlog over 3 Years+	2,702	4,440	3,957	$4.59++	$7.70 for 12 Quarters
Remove Backlog over 5 Years+	3,562	5,260	5,740	$5.98++	$5.25 for 20 Quarters

+ 3 and 5 year Scenarios assume that each year delay will add 1% of the existing 43,000 street tree population (an additional 430 trees/year) into Priority Removal and Pruning activities listed above. These scenarios assume that a routine pruning cycle is funded to maintain the urban and community forest after backlog is removed.

++ Assumes a 4% annual increase in costs to perform activities

***** Includes stumps generated from the backlog of tree removals

****** Stormwater Utility Tier II residential customers. Assumes all costs accrue to the Stormwater Utility.

Routine Pruning Cycle

The funding required to implement the first routine pruning cycle for street trees would be in ADDITION to Forestry's annual budget. The scenarios below provide cost estimates for implemeting a routine pruning cycle for both street and park trees. While the tables show there would be no budget increase if a routine pruning cycle is not implemented, that is not entirely correct. There are costs for not implementing a routine pruning cycle that are not reflected in the table including, staff overtime to handle downed/damaged trees, resident inconveniences (e.g., road closures, power outages, property damage) and reduced benefits from a deteriorating urban and community forest.

STREET TREES FIRST PRUNING CYCLE*	CURRENT LEVEL OF SERVICE (NO ROUTINE PRUNING CYCLE)	5 YEAR PRUNING CYCLE	7 YEAR PRUNING CYCLE	10 YEAR PRUNING CYCLE
# of Trees Pruned Per Year (Street Trees)	0	7,800	5,600	3,900
ANNUAL Average *Estimated* Forestry **Budget INCREASE** to Implement Pruning Cycle	$0	$470,000/year (For 5 years)	$350,000/year (For 7 years)	$260,000/year (For 10 years)
TOTAL *Estimated* Forestry **Budget Increase** for 1st Pruning Cycle (Street Trees)	$0	$2,350,000*	$2,450,000*	$2,600,000*
EXAMPLE Estimated Stormwater Utility **Quarterly** Rate **Increase** for Average Single Family Residential Customer***	$0	$3.25 for 20 Quarters	$2.75 for 28 Quarters	$2.25 for 40 Quarters
1st pruning cycle complete. Begin: FY2016 (All street trees pruned once)	n/a	2021	2023	2026
Estimated ANNUAL cost of Future Pruning Cycle after 1st cycle is complete	$0	$234,000**	$182,000**	$140,400**

*Assumes a 4% annual cost increase
**Future Pruning Cycles could be funded with existing Forestry budget dollars- continued budget increases would not be needed.
***Stormwater Utility Tier II residential customer. Assumes all costs accrue to Stormwater Utility.

PARK TREES FIRST PRUNING CYCLE*	CURRENT LEVEL OF SERVICE (NO ROUTINE PRUNING CYCLE)	5 YEAR PRUNING CYCLE	7 YEAR PRUNING CYCLE	10 YEAR PRUNING CYCLE
# of Trees Pruned Per Year (Park Trees)	0	1,260	900	630
ANNUAL Average *Estimated* Cost to Implement Pruning Cycle	$0	$75,400 (For 5 years)	$56,200/year (For 7 years)	$42,000/year (For 10 years)
TOTAL *Estimated* Cost for 1st Pruning Cycle (Park Trees)	$0	$377,000**	$394,000**	$420,000**
Estimated ANNUAL cost of Future Pruning Cycle after 1st cycle is complete	$0	$37,800	$29,250	$22,680

*Implementation of a routine pruning cycle can be funded through existing funds in the Park Millage
**Assumes a 4% annual cost increase